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The Temple of Serapis.

M. Auguste Mariette has been, for years past, employed by the French government in making researches in Egypt. Most of his labors have been spent in the excavation of the famous temple of Serapis. A correspondent of the *Journal of Commerce* says :—

"He has completely cleared the Serapeum of the sand under which it lay buried for so many centuries. The fusion of Greek and Egyptian art at various periods is established by a number of statues which were among the images of Serapis. Sculptured representations of Apis were found by the side of statues of Pindar. Homer, Lycurgus, Pythagoras, Plato, and Euripides. An alley or avenue of six hundred sphynxes is terminated by a series of figures representing the principal Hellenic divinities—genii placed, in the Egyptian manner, or animals that symbolize those divinities. The most important of M. Mariette's discoveries was the tomb of Apis, a monument excavated entirely in live rock. There are a hundred vast chambers, the ensemble of a real subterranean city. They supplied the discoverer with a multitude of *steles* (monolyths, statuettes, images of all dimensions and of every age) deposited by the ancient Egyptians in the chambers and compartments of the funereal structure, as tokens of their pious devotion to the mummy of the god worshipped at Memphis.—There are epitaphs forming a chronological record of the Apis buried in the common tomb. The sculpture is of the date of the pyramids, and the statues are in the best state of preservation; the colors are perfectly bright; altogether the execution is admirable, and they convey an exact idea of the physical character of the primitive population."

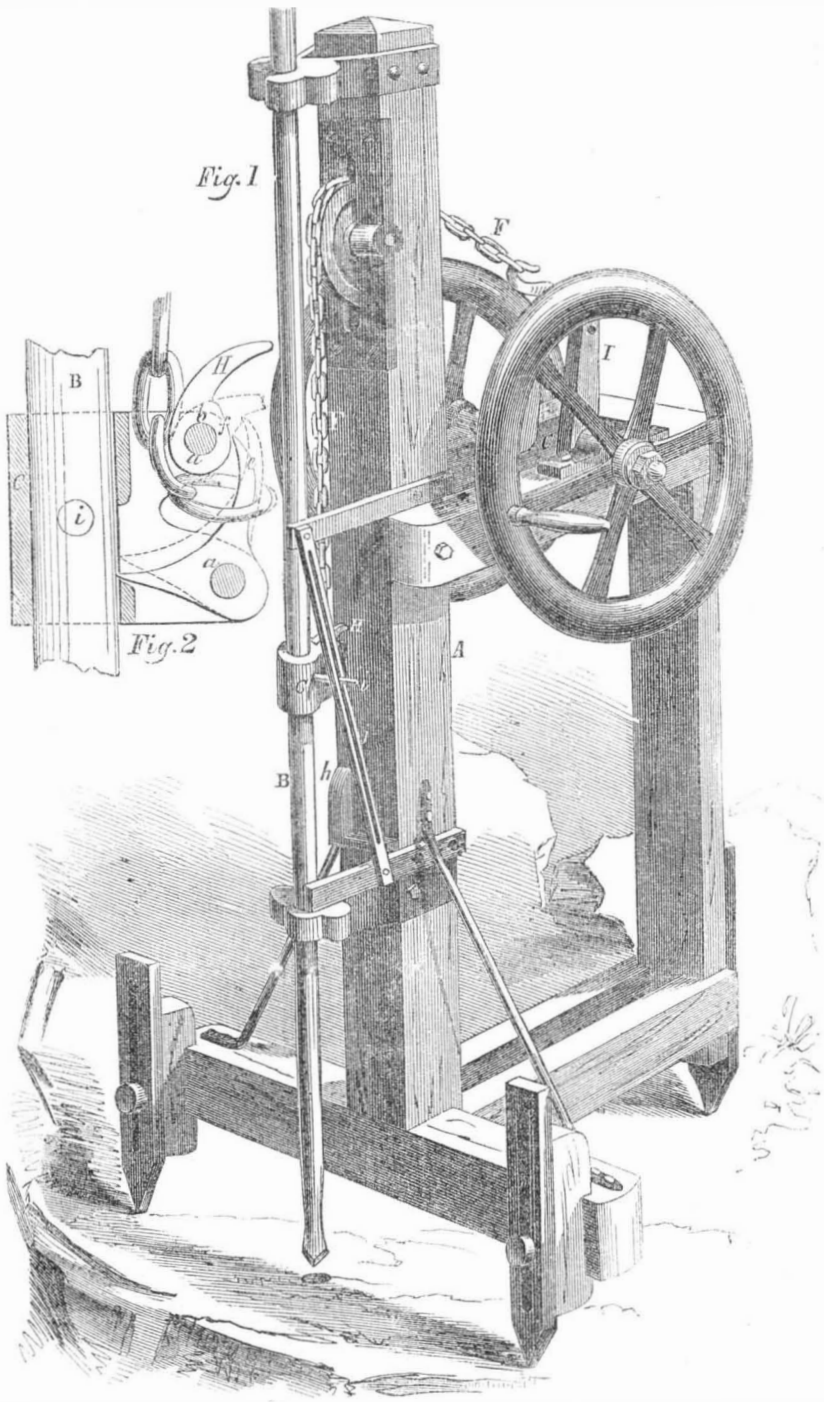
To Give a Dull Black Color to Brass.

A dull black color, such as is frequently employed for optical instruments may be given to brass by first carefully rubbing the object with tripoli, then washing it with a very dilute solution of a mixture of one part neutral nitrate of tin and two parts of chloride of gold, and then wiping off the excess of liquid, after the lapse of ten minutes, with a wet cloth. If there has been no excess of acid, the surface of the metal will have assumed a dull black color. The neutral nitrate of tin may be prepared by decomposing the perchloride with ammonia, and dissolving the precipitated oxyd thus obtained in nitric acid.

New York Mechanics Institute Classes.

We desire to call attention to the classes now being formed in the Mechanics' Institute, this city, advertised last week, the terms are within the reach of every young man who desires practical instruction in important mechanical and artistical branches, such as cannot be obtained elsewhere but at a heavy cost. Every mechanic should learn to be a good draughtsman.

MACHINE FOR DRILLING STONE.



The annexed figures represent an improvement in machinery for drilling stones, for which a patent was granted to Ferdinand Davison, M. D., of Petersburgh, Va., on the 7th of last November.

Figure 1 is a perspective view, and figure 2 is a vertical enlarged section of the catch block, by which the drill is attached to the machinery for raising it. Similar letters refer to like parts.

This invention consists in a new and improved combination of parts for the purpose of catching hold of the drill bar or drill, to attach it to the machinery by which it is lifted or drawn back, and of setting it free therefrom, to enable it to strike the blow, either by the force of its own gravity or by force applied by springs or their equivalents properly arranged and attached for the purpose.

A is a framing of proper strength and proportions to receive a drill bar, B, which is arranged in suitable guides. The drill bar is furnished with a catch block, C, of cast, or wrought iron, which is capable of sliding freely or turning on the drill bar. This catch block is slotted on one side to receive a dog, which is pivoted to it by a pin, *a*, connected at its tail, *e*, with a chain, F, which passes over a pulley at the top of the machine, and connects with a crank, I, on the driving shaft, G. This chain, by passing round a proper guide in the catch block, is made to act in such a way that when the dog is not under other control, the weight of the catch block draws the dog toward it, and makes it bite the drill bar, whose own weight further tightens the bite to enable the bar to be raised by the revolution of the crank. Above the slot in which the dog works, is placed a trigger, H, which works on a pin, *b*, between two ears in the catch black. One part of this trigger serves as a guide to the chain, F, and another part has an eccentric face, which works inside the tail of the dog and in contact with the said tail, which is slightly bent at the end to enter a notch, *f*, above the eccentric. When the catch block is being drawn upwards the tail of the dog is in contact with the face below the more eccentric part, and is made to hold the trigger stationary; but just before the upward motion of the catch block terminates, the trigger comes in contact, as shown in fig. 2, with the upper part of the framing, A, or with some fixture attached thereto, and a very slightly continued upward motion serves to move the more eccentric part of its face into contact with the tail of the dog, and throw it back far enough to set free the drill, which then falls. The catch block ascends far enough after setting free the drill bar to bring the tail of the dog into the notch, *f*. During nearly the whole time of the descent of the catch bar, which is lowered by the ascent of the crank to which the chain is connected, the trigger, by reason of its weight, holds the dog free of the drill bar, but just before the descent terminates, the trigger comes in contact with a fixed stop, *h*, on the lower part of the framing, and the remainder of the downward motion is sufficient to release the tail of the dog from the notch, and throw up the trigger far enough to bring the lower or least part of its face opposite the tail of the dog, and thus leave the dog entirely under control of the chain, E, when the catch block ascends.

The whole of the working parts of the machine are actuated by the revolution of the crank shaft, G, and consequent raising and lowering of the catch block, by means of the chain connected with the dogs.

The turning of each drill bar is effected by means of a stud, *i*, attached to its catch block, and working in an oblique guide, *j*, secured permanently to the framing. The drills being set entirely free every time they strike, are self-feeding.

The invention is applicable to work the drill horizontally, or in any other direction, but when the position is such that the gravity of the bar will not act to give force to the blow, it will be necessary to apply springs or equivalent devices for that purpose, and also to apply a spring or equivalent to the catch block, to return it after drawing back the bar. Any number of drills may be operated in one machine by duplicating these parts.

The claim consists in the peculiar device for clamping and releasing the drill or drill bars; consisting of the dog to which the chain or its equivalent is attached, and the trigger, H, for locking and unlocking the same on the drill bar, said dog and trigger being constructed, combined, and arranged within the catch block, C, substantially as described, so that the latter locks the former at the termination of the descent of the catch block, and unlocks it at the termination of the ascent thereof, by striking some parts of the framing of the machine, or certain fixtures provided for the purpose.

The eccentric dog for catching and holding the drill to be lifted, and the slot, *j*, with the pin, *i*, for turning the drill, are very simple and excellent devices for accomplishing the objects specified.

More information may be obtained by letter addressed to Ligon & Davison, Richmond, Va., or Rochester, N. Y.

Coffee.

There is in Berlin, Prussia, a large establishment for the manufacture of coffee from acorns and chickory, the articles being made separately from each other; the chickory is mixed with an equal weight of turnips, to render it sweeter. The acorn coffee, which is made from roasted and ground acorns, is sold in large quantities and frequently with rather a medicinal than an economical view, as it is thought to have a wholesome effect upon the blood, particularly of scrofulous persons.—[Philadelphia Ledger.

A Blue Rose.

The horticulturists of Paris, it is said, have succeeded by artificial crossings in obtaining a natural rose of blue color, which is the fourth color obtained by artificial means—that and the yellow or tea rose, the black or purple rose, and the striped rose being all inventions, and the result of skillful and scientific gardening.

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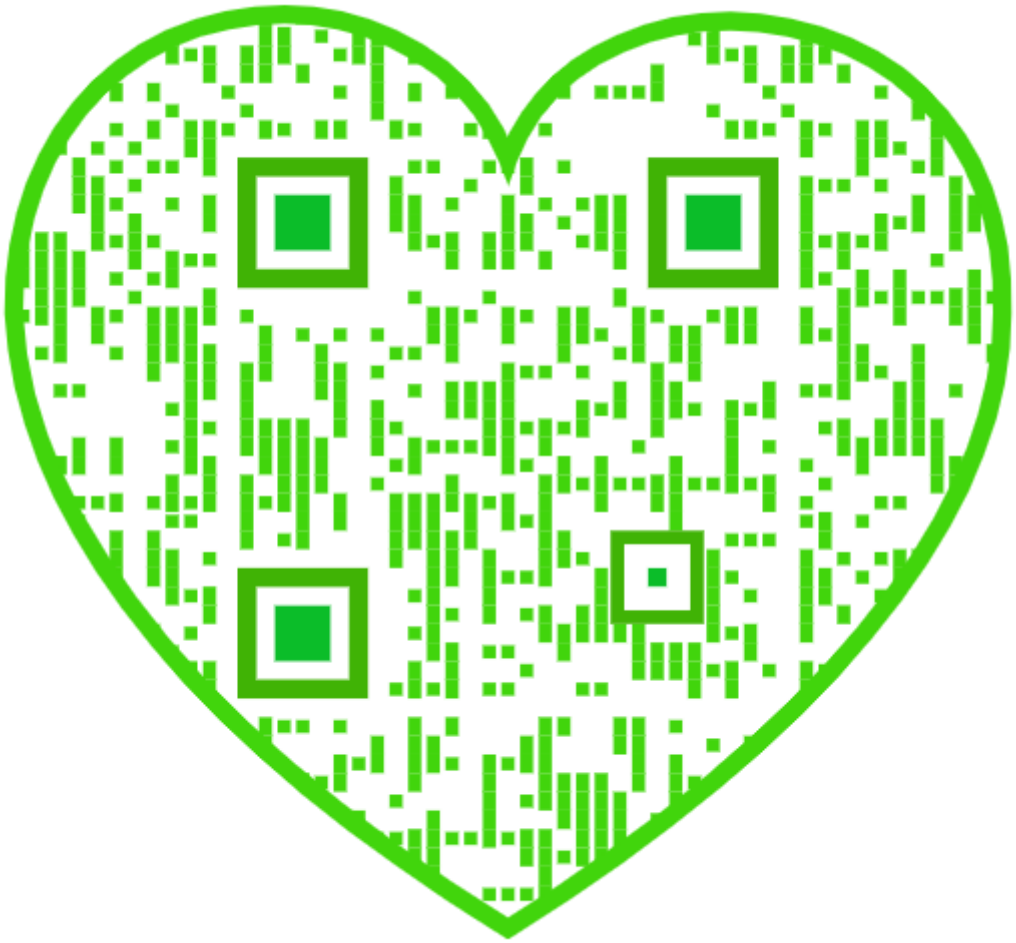

The Art of Dyeing—No. 4.

RED ON WOOL—In ancient times Tyre was famous for dyeing purple on fine wool. So expensive was this color that it was worn only by kings. The accounts of it are somewhat fabulous; Pliny describes it as obtained from a certain species of shell-fish named "Murex." In the reign of Augustus, one pound of fine wool dyed of the richest blood-red hue was valued at about $160. This method of dyeing red on wool is now unknown.

Next to the Tyrian purple was the "Kermes Red," so called from the insect with which it was dyed. It was known to the Greeks and Romans. It was found on a small species of oak growing in most of the southern parts of Europe. The wool for this dye being well cleaned was prepared by boiling one hour in a solution of alum and coarse tartar—the quantity of alum was one-fifth that of the wool, and the tartar one-half that of the alum. It was allowed to steep in this liquor for three days, then taken out, washed, dripped, and dyed by boiling it for one hour in a bath of ground kermes, of twelve ounces to the pound of wool. It was then washed and dried. Kermes red was very permanent, but is now unknown in the arts; cochineal and lac have entirely superseded it.

COCHINEAL—The most beautiful of all red colors is that produced by cochineal—the *coccus cacti* of Mexico. These insects feed on the cactus plant, and are cultivated by the natives of Honduras—where the finest grow—simply as a dye drug. They are swept off with feathers into pans of hot water, and afterwards dried for market. The wool for red being well scoured and washed is introduced into a bath of ground cochineal, and its mordant, and finished at one operation. The wool must be white, the dye kettle must be very clean, and either of copper or tin. To dye five pounds of wool, let seven and a half ounces (1½ to the pound) of ground cochineal be introduced into the kettle, and boiled for five minutes; then introduce ten ounces of cream of tartar and a large wine-glass full of the nitro-muriate of tin; stir all up, and introduce the wool, handling it neatly and rapidly. Allow it to boil for three quarters of an hour, and a good full color may be expected. This is the most beautiful red dye in the world, and the most easy and simple to dye. It is dearer, however, than the *Lac*. This is the product of an insect, a native of the East Indies. There are different kinds of it, that used for dyeing is prepared for this purpose. About four ounces of lac (some kinds require six) are employed to dye one pound of wool. It is prepared for dyeing by steeping it (the lac) for twenty-four hours in strong hydrochloric acid, stirring it from time to time, and then dyeing in a bath the same as cochineal. It is a cheaper and more common but much inferior color to cochineal. All goods that are dyed with spirits of any kind, or acids, must be well washed before they *are dried*.

SCARLET—A little yellow oak bark liquor added to the cochineal or the lac bath, makes the color a scarlet, instead of a red; that is, it forms a binary color composed of the red and yellow rays—the red predominating.

The proportions of dye stuffs given will answer for yarn; cloth requires less, but there is also a great difference in the quality of the wool. The coarser the wool, the more dye stuffs are required, and vice versa. One ounce of the best cochineal will dye a very good color on a pound of fine merino wool.

MADDER RED—This color has been long and pretty generally known among our country folks. To dye one pound of yarn or flannel, three ounces of alum and one of the cream of tartar, are the proportions for every pound. To dye five pounds of flannel take one pound of alum, and five ounces of cream of tartar, and after they are dissolved in water in a clean brass or copper kettle, enter the flannel loosely, and keep poking it down under the liquor, and gently raising it from the bottom, and boiling for about one hour and a half. Take it out, hang it up, and air it for fifteen minutes, and then wash it well in cold water. The kettle being emptied and filled with clear water, into which two and a half pounds of good ground crop madder, (well broken and mixed in a little cold water previously) have been introduced. Warm up this to such a heat as the hand will bear, introduce the flannel, and bring it up to a scalding heat, taking about half an hour to do so, then keep it at this heat for another half hour, and boil for ten minutes. It is then lifted and aired, and about a quart of clear lime water introduced and stirred in the liquor, when the flannel is again entered, and handled for ten minutes. It should then be a good rosy red. Care must be taken to get good madder.

A very excellent plan for *bleeding* the madder, as it is termed, is to steep the quantity intended to be used in dyeing, over night, in a clear decoction of bran—about two pounds of bran should be used for every one of madder, in about two gallons of water.

NICARAGUA RED—This is the most fugitive of reds on wool, because it will not stand washing so well as the others described; it is, however, easily dyed, and on fine wool is a very rich and pretty color. The wool is prepared in the same manner as for madder (flannel should never be dyed with this stuff,) and then in a clean liquor of boiled Nicaragua chips at the rate of half a pound to the pound of wool, which is introduced into a clean copper kettle, brought to a boil, the wool entered and handled well for three quarters of an hour, after which it may be taken out, washed and dripped, and is ready for drying. If Brazil wood is used, six ounces to the pound will answer. Both Brazil wood and Nicaragua dye woods should be boiled up to a strong liquor, and kept standing in a vat for use. It is a fact well known to dyers that such liquors make more beautiful colors than if used at once from boiled chips.

Nicaragua red can also be dyed at one operation like cochineal red, by using only about two ounces of alum to the pound of wool, but using more dye wood. Where time is of the most consequence, this plan should be pursued.

All these red colors on woolen goods are easy to manage, if the goods be clean. The madder red is the most troublesome on account of the difficulty in detecting bad stuff. All deep dull reds on merino twilled cloth are dyed with Brazil wood; the bright reds of tartans (woolen checks) are generally dyed with lac; and the very brightest with cochineal. Madder is seldom used for dyeing red in the workshop, although it is the most permanent color.

The discovery of dyeing red and scarlet on wool and silk with cochineal, and a base of tin dissolved in acid is attributed to a Dutch chemist—a Hollander—named Cornelius Drebel; this was in 1630. It was a grand discovery, for it is the most brilliant of all colors. It was termed "Dutch scarlet" for many years after his discovery. It is to be regretted that cochineal is so expensive, being about two dollars per pound, but its cultivation is troublesome. We have been told that those *peans* in Mexico who gather it, are sad looking objects during such labor. Their faces and hands get scratched with the cactus, and then break out into fearful looking sores.

We will describe the methods of dyeing red on silk, in our next.

Curiosities of Nature.

In an interesting letter to the New York *Courier and Enquirer*, Mr. E. Meriam states that there is in Lockport, N. Y., an artesian well four hundred and fifty feet in depth, from the bottom of which rises a vein of salt water, holding in combination a large percentage of diliquescing chlorides, which, mingling with waters of other veins, produce instantaneous crystallizations of beautiful *syenite*, in flattened eight-sided prisms of about an inch in length, an eighth of an inch in width, and a sixteenth of an inch in thickness. The laminæ of these are so perfect that a single crystal may be divided by means of heat, into two dozen distinct sheets. This well is peculiar in more respects than one. It is accustomed to spout salt water for but a few moments at a time, and then subsiding remains quiet for the space of an hour, at the conclusion of which it again begins to puff and roar, and shoot forth its saline jets. When the workmen were sinking this well, the auger, upon attaining a depth of two hundred and thirty-five feet, fell suddenly about fourteen feet, and reached the bottom of a subterranean river, flowing with so strong a current as to produce a perceptible motion in the upper part of the stem of the auger.

Experiments in Stopping Railway Trains.

Some experiments were recently made on the Brighton and South Eastern Railway, England, by Captain Tyler, for the purpose of ascertaining in how short a period and distance a railway train could be stopped. Two trains were made up, one by the Brighton Company, and the other by the South Eastern, and laden respectively with about 32 tuns of iron and other materials, fairly distributed over the carriages, that being calculated to be about the weight of 450 passengers. In order that these trials might have as much similarity as possible to an ordinary case of driving a train, the men in charge of the trains were not allowed to pull up from the first instant the distance or semaphor signal caught their eye, but at an arbitrary given signal, indicated by Captain Tyler himself, at a moment when they might not be expecting it.

Four trips were made between the junction of the two lines. The first was a South Eastern train, and driven by men in the employ of that Company. It started, and, when traveling at the rate of 53 1-2 miles an hour, Captain Tyler gave the signal to stop, and the train was brought to a stand at a distance of 2,077 yards from the point where the signal was given, and that simply by the driver shutting off his steam and the guard applying the two breaks attached to his van, without the engine having been reversed. The second experiment was with a Brighton train, driven by Brighton men. The last mile was run in 66 1-2 seconds, or at the rate of about 54 miles an hour, and the train was pulled up in 1,832 yards after being signalled to stop, by shutting off the steam, applying two breaks, and without reversing the engine, or in less space by 245 yards than the preceding train. The third trial was conducted with a South Eastern train, and by a driver and fireman belonging to that Company, and the object of it was to ascertain in what distance it could be stopped by the application of the same means, and added to them, the immediate reversal of the engine after the signal to stop. The result was, that the train, while going a mile in 66 seconds, was brought up at the distance of 1,790 yards, or in two minutes; but seven seconds were lost in the application of the breaks by the driver not sounding his whistle until after he had reversed his engine. The fourth and last experiment was with a Brighton train and Brighton men, and, by arrangement, every available means was employed to stop on being signalled—namely, reversing the engines, shutting off the steam, applying the breaks, and causing the engine to scatter sand along the rails. The effect of all this was, that the train, while traveling at the rate of a mile in 63 seconds, was pulled up in a minute and a half after the signal, and in the distance of 1,389 yards; thus showing that the application of the sand has a most important influence to stop trains in an emergency, and to this our engineers would do well to take heed.

Telegraph to the Pacific.

The Committee on Territories, in the House, has reported the Senate Bill for the construction of a subterranean telegraph from some point on the Mississippi river to the Pacific Ocean, at San Francisco. The committee in their report say that the Bill is of transcendent public concern, and possesses the merit of practicability and early completion, if it can have the encouragement of the government. It provides for right of way through the public lands, and that it shall be constructed by individual enterprise and at individual expense. The government are to have free use of the line to the extent of 8,000 words per month, in consideration of which two millions of acres of land in alternate sections along the line, are to be donated to the parties building the telegraph.

Railways of the United States.

The United States are now ahead of the world in the railway movement, and from what has been done we may justly look forward with hope and pride to the future. The following is a comparative statement of the railways of the United States on January 1st, of four years stated:—

Miles in operation:—1852, 11,565; 1853, 13,847; 1854, 17,811; 1855, 21,310. Miles in construction:—1852, 11,228; 1853, 10,418; 1854, 12,898; 1855, 16,975. Capital invested:—1852, $335,150,848; 1853, 408,103,109; 1854, 508,588,038; 1855, 621,316,303.

The items in our present annual statement have been mostly based on the reports of the companies, but when these have not been accessible, the information has been obtained from the local press, and from other sources. The total amount of capital invested in railways we think is vastly understated. There were 3,599 miles opened last year.

Had the stringent money market given way, and capital become more easy and plenty, there would no doubt have been some two thousand more miles of railway finished during the past year. Perhaps it is well as it is, but there can be no doubt that railway construction will be much diminished during the next two or three years. Railway shares and other securities are now in bad odor throughout the country, and nothing will bring them up again but a long course of rigid economy in management, and a partial cessation of demand for capital to construct new enterprises. The roads built during the past year have labored under disadvantages of no common character, and the only surprise we can express is, that so much should have been done under such unpropitious circumstances. We hope that at the end of the present year railway property will stand in a stronger position than it now does, and that the really valuable property will be properly regarded by those most interested.—[American Railway Times, Boston.

The Minie Ball.

The Cleveland *Herald* is informed that the manufacture of muskets in our armories is abandoned, and our men will be armed with improved Minie rifles with bayonets. The Minie ball is now to be manufactured upon an improved plan. As now used in the Crimea, the powder drives the sheet iron cup into the cavity of the ball, and this spreads the ball so as to perfectly slug or fill the rifled bore of the gun. The improvement is to dispense with this sheet iron cup and make the powder do all the work of spreading the ball.—Our army will use the Minie ball without the cup. A portion or the whole of the charge of the powder is inserted into the cavity of the ball, and powder and ball made into a cartridge. The explosion of the powder in this cavity does the whole work of spreading the ball and driving it on its mission of death. Another improvement in the manufacture of balls in our service, is that of cutting them out of sheet lead instead of running them. These are termed pressed balls, and possess a much more uniform density—hence more true in their flight towards the object aimed at.—[New England Farmer.

[How can "our army use the Minie ball without the cup?" In that case it will not be the Minie ball. If it is meant by the above that part of the charge is to be placed in a hole in the butt of the ball, as a substitute for the Minie iron capsule to spread the lead in the barrel, then, it will be found a very inferior plan.

St. Paul, Minnesota.

The above named place must contain a very enterprising and intelligent population. The St. Paul *Daily Times*, which we receive regularly, is a handsome, spirited, and able paper.

In England and Wales there are 5,897 miles of railways in operation.

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(For the Scientific American.)

Ventilation and Sewers.

The scheme propounded by Mr. Nasmyth, in a letter to the London *Times*, and noticed in the SCIENTIFIC AMERICAN a few weeks since, under the head of "Ventilation of Sewers," is a step in the right direction, and I am happy to perceive that this subject has at last attracted the attention of scientific men. I have not a doubt that sewers are a most prolific source of disease in cities and towns.

Mr. Nasmyth's plan is good as far as it goes. He has evidently a glimmering of the true principle, but I apprehend that the quantity of effluvia for the combustion of fuel for all the steam engines in connection with lofty chimneys, in any city, would fall far short of rendering our sewers innocuous.

Let every dwelling in a city be properly ventilated, and there would be no further use for sewers than to carry off the surplus water from our buildings, and rain water from the streets. Every building should have its "foul air shaft." Let us get in the way of building our chimneys for air as well as smoke, and let us once understand that our cellars require more ventilation than any other apartments in our dwellings, and that the most important flues in the chimney are those which connect with the bottom of the cellar and our water closets, and then more than half the work will be done. We should thus get rid at once of the principal part of the noxious effluvia of a whole city—in detail; and by the well known law of the diffusion of gases, all evil effects from this source prevented. No water closet should ever be permitted to be drained into a sewer unless that sewer be thoroughly ventilated—then only can it be done with impunity.

It is quite a mistake to suppose that our sewers as now managed carry off the mephitic air generated in our dwellings.

Let us look at the actual state of things once boldly in the face, and a remedy will be found, but as long as we allow ourselves to be deceived by appearances, so long will most of our sanitary measures prove abortive. Whilst we see the waste water run freely into our drains, we sit down quite contentedly—the noxious gases coming up them is not perceived.

What, then, is the plain matter of fact? Every building is drained into these sewers; the consequence is, that these drains having no connection with any chimney or flue, the whole building becomes a "foul air shaft" for the sewer. By the rarefaction of the air, and the natural draft of chimneys, there is a constant draft up these drains, and into and throughout dwellings. To make the matter worse, (as the mouths of sewers are generally left open) whenever the wind blows in a direction up the sewer, the malaria is blown out in ten-fold quantity.

But properly managed, these sewers might be turned to good account in the ventilation of a whole city upon the same principle that I would ventilate a house, viz., by erecting a foul air shaft near the mouth, which mouth should always be under water, so as to exclude all the external air. All the miasm would thus be drawn down the sewer, and, of course, down every drain, and thus, with very little trouble and expense, a whole city may be ventilated. Properly constructed, nothing could be more certain than the operation of such a shaft. The hight would somewhat depend upon its locality—but the higher the better, and if properly formed and connected with the sewer, its work would be prodigious, and without any further expense than to keep it in order. Let this be tried in one of your most unhealthy localities.

HENRY RUTTAN.

Coburg, Canada, January 1855.

(For the Scientific American.)

Olive Oil for Snake Bites.

Some months since you published interesting articles on the subject of poisonous snake bites, I concur in the opinion you expressed that the best known remedy for such a sedative poison is whiskey or other alcoholic stimulant—drank to intoxication in most cases.

Another remedy:—Apply (when practicable) around the wounded limb a ligature to retard the flow of the poison with the blood towards the heart, give the patient a table spoonful of pure olive oil every half hour until relieved, commencing as soon as possible after the infliction of the bite; at the same time oil is to be rubbed on and about the surface wounded. An intelligent physician informs me that during his residence on the Brazos River for many years, he used this remedy with uniform success. During one year five or six of his own slaves were bitten by what he believes to have been poisonous serpents, such as moccasins, rattlesnakes, cotton-mouths, &c., and were promptly relieved by the olive oil. The toe of a negro girl bitten by a cotton-mouth serpent, (such is the popular name) sloughed off the day after the bite—the olive oil relived her. In short, he says he has never known the remedy to fail. I give the information for what it is worth. Let the unfortunate try it, if no better remedy is at hand.

LACON

Galveston, Texas.

For the Scientific American.

Barometer and Cannonading.

Chas. Le Maout has communicated to the French Minister of War the discovery that a heavy cannonade affects the barometer at the distance of fifteen hundred miles. That would seem to be a very natural consequence. The atmosphere is a very elastic mobile body.—The concussion caused by a four pounder sways a balloon a mile above the earth, and several miles off. Even the beating of a large drum produces an atmospheric wave, at a considerable hight and distance. I have frequently noticed this while sailing in the air.

The cannonading at the battle of Balaklava, or Inkerman, must have produced immense atmospheric waves. The direction of concussion would be upward and laterally, increasing the wave as it went. This followed by another, and another, and so on, by successive discharges of batteries, augmenting the first by each successive wave, would soon put an immense body of atmosphere in motion; and this body rolling along would press the mercury in the barometer over which it passed, and cause it to rise.

I have ascended when the air was calm on the earth, and on reaching an altitude of eight to ten thousand feet, found an atmospheric wave that undulated along at the rate of over a mile per minute. These undulations were so great as to be observable by the increase and diminution of objects to the sight on the surface of the earth, from the balloon's approach to it and recession. And these effects were enhanced in crossing mountain ridges and valleys.

The atmosphere always moves in waves, whatever may put it in motion. Suddenly generated waves are most disastrous, though of short duration. They capsize ships, unroof buildings, and desolate fields. The depression, being sudden, is as quickly relieved, and in the re-action of the wave causes the unroofing of buildings and uprooting of trees. In this instance we have, first, compression, followed quickly by dilation. Hence, buildings burst outwards in tornadoes, and roofs fly upwards. It is always the effect of *re-action*, because that has no solid obstruction as is the case in *action*, where the solid earth under the building and the ordinary air with in protects it from collapse.

Le Maout's philosophy on this subject is sustained by reason and observation. If a file of soldiers march across a suspension bridge in "mark time" order, it will produce an augmenting wave on it. If this be followed by another file in corresponding order, and still another, I would not answer for the best suspension bridge in the country, though a thousand heads of oxen had gone over it with impunity and safety. Again, in pulling down a wall or a tree with a rope, fifty men may pull their utmost in a continuous strain and not bring it down, while ten men may accomplish its downfall by undulating impulse upon impulse until the accumulated force of a hundred waves topple it over.

The first discharge of a battery at Inkerman produced concussion in the immediate surrounding atmosphere. The next discharge followed it, overtook it, and increased it,—this went on for eight hours. Truly an immense atmospheric wave was propagated; and once propagated and in motion, it must, indeed, have fluctuated the barometer for a great distance from the place of cannonading.

JOHN WISE.

Lancaster, Pa., Jan. 6th, 1855.

Coating Wire Fences.

MESSRS. EDITORS—In your last paper, speaking of wire fences, you recommend them to be coated with coal tar. In the *National Telegraph Review* for July, 1853 (Philadelphia,) page 116, 117, is an account of the application of coal tar to a telegraph line, which ends with, "Well, the tar was on, but it would not do. The pyroligneous acid it contained commenced a war on the wire. Instead of proving a preservative it proved a destroyer, and thus the days of tar were ended." Further on, is the passage, "The simplest coating, and perhaps the best which can be used, of an unconducting character, is by first allowing the wire to rust, and then coating it with boiled linseed oil. A paint of the oxyd of iron is thus formed, simple, cheap, permanent, and with the merit of an easy application." W. M. S.

[We never heard before of coal tar containing pyroligneous acid; wood tar contains some, but not coal tar. It is true, however that the boiled linseed oil applied to wire slightly rusted, makes an excellent coating, as recommended by our correspondent. We recommended a mixture of coal tar and oil.

A Forthcoming Wonder.

According to a correspondent of Herapath's (English) *Journal*, steam power is to be superseded by "Poulson's Patent Pendulum T-Lever," which will be brought before the public in about a month. Two men, in a sitting position, will be able with ease to propel a railway engine of twenty-five horse power, with its full complement of carriages, at any speed attainable by steam power. the tenders and boilers of the present engines will be no longer required, and the new engines will be constructed of about one-fourth the weight, and say, at one-sixth or one-eighth the cost. The wheels and frames of the present engines will be available for the new ones.

Is the above a humbug or not? H.

[The above is scarcely a humbug; it is too transparently contradictory for that, and is no doubt somewhat waggish. Just fancy two men (as stated in the paragraph) *in a sitting position, propelling a railway engine of twenty-five horse power.* Our correspondent may safely set down all those discoveries of gaining power from a lever, as humbugs. There is no power in a lever; it is merely a device for communicating the force of the active agent—man, horse, steam, or water.

Artificial Whalebone.

Compte Van der Meere's patent for softening horn and rendering it elastic like whalebone:—The horns are cleansed, split, opened out and flattened, and immersed for several days in a bath composed of 5 parts of glycerine to 100 parts of water. They are then placed in a second bath, consisting of 3 quarts of nitric acid, 2 quarts of pyroligneous acid, 12½ lbs. tannin, 5 lbs. bi-tartrate of potash, and 5 lbs. sulphate of zinc, with 25 gallons of water. After leaving this second bath, it will have acquired a suitable degree of flexibility and elasticity to enable it to be used as a substitute for whalebone for the ribs of umbrellas and other purposes.—[London Artisan.

Improvements in Puddling Iron.

James Nasmyth, of Patricroft, near Manchester, Eng., has recently patented an improved operation in iron manufacture, by subjecting the molten metal in the puddling or refining furnace to the action of a current of steam, introduced at its lower portion, diffusing upwards, and thus mechanically agitating the liquid metal, and exposing fresh surface to the oxygen of the furnace atmosphere, which chemically combines with the carbon and sulphur contained in the iron, and deprives it of those impurities. The hydrogen set free is thus in a state to combine with any excess of sulphur, whether present in the iron, or as a product of the combustion of the fuel.—[Mining Journal.

Effect of Pressure on Substances.

Evan Hopkins and W. Fairbairn, two very distinguished men of practical scientific attainments, have made a number of experiments on different substances, under enormous pressure, and the results they have obtained claim the attention of all engineers, mechanics, and molders. Mr. Fairbairn had submitted some substances to the pressure of 80,000 lbs. on the square inch, a weight equal to a column of water 33 miles in hight, and found, that under this enormous pressure clay acquired the density and hardness of stone.

The Lancaster Gun.

Many of our journals, as well as those in England, have endeavored to give the public a true idea of the construction and nature of the above-named gun, which has won so much fame in the Crimea, but we confess to have been amazingly befogged with their descriptions, and must say that a little more reflection would have convinced every one of them who has endeavored to be wise on the subject, that it has been very soft. It has been described by one as the "oval gun," that is, having an oval bore, from which we should infer that it was made for firing off eggs. By another it has been described as having an elliptic bore, from which we should infer that it was useful for shooting eccentrically. How in the name of common sense could a cast-iron ball be rammed down a cannon if it had a conical bore—narrower at the breach than the muzzle? It is impossible. The Lancaster gun is simply a rifled cannon having conical balls cast for it, each with two broad projections to fit into the grooves. A. Jones writing to the *Journal of Commerce* of this city, claims to have invented the Lancaster gun in 1842, but his description shows that he has been led astray by the common accounts which he has read of it. He says:—

"My theory was, that projectiles which moved through the air with the least resistence, were those of a spheroidal form, or which resembled the form of the earth. In other words, that round bodies, or balls projected through the air, had a tendency to dispose the particles of which they were composed into flattened spheroids—that is, a round body put in rapid motion had a tendency to expand in the circumference of its equator, and to contract at its polar axis To obtain a high range from a cannon fired from heavy ordnance, which was the chief object of my invention, I proposed to make cannon with spheroidal bores, and to cast the balls in the same shape, believing that they would offer less resistance in their transit through the air than common round balls. This theory has since been proven by the Lancaster gun, recently brought out by Mr. Lancaster, who, I learn, is a gunsmith of London. The invention may possibly have been original with him, as, I know, mine was with myself, and in advance of him, or other parties."

Here Mr. Jones is very vague. How could he make cannon with spheroidal bores—that is in plain words, making the chamber of a cannon the same form as its ball. All cannon are now bored for spheroidal balls—a true sphere being a perfect globe with every part of its surface equi-distant from its center, but the bore is not spheroidal. The Lancaster gun, on the contrary, is simply a rifle, with shot cast to suit its bore. Mr. Jones' theory will not apply to rifles, and it is from rifled cannon that the great improvements in such kinds of war engines are to be obtained.

A very interesting patent trial, respecting "Sickles' Cut Off," has been in progress in this city during the past six days. We will give the particulars in our next.

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New Inventions.

Freeing Canal Boats of Water.

The annexed figure represents a transverse section of a plan for freeing canal boats and other vessels from water, for which a patent was granted to Wm. Loughridge, of Weverton, Md., on the 11th of last July.

The invention has for its object the discharge of the leakage from canal boats and other vessels without the employment of pumps. It consists in the peculiar arrangement of a float in the interior of the vessel combined with a tube operating on the syphon principle, by which the discharge is rendered automatic, and the vessel freed from its leakage at all times, without the assistance of the crew, rendering examinations as to the quantity of water made unnecessary, and obviating the necessity for a watch to pump out during the night.

In the figure, *a* represents the boat, and the space between *a* and *a'* the thickness of the bottom planking, in which is inserted a bent tube, *b*, open at one end, *c*, and connected at the other with a metal or gutta percha tube, *d*. The open mouth, *c*, is slightly above the surface of the plank, and has resting upon it a valve, *e*, having on its under surface an elastic pad for giving a perfect contact with the mouth, *c*, of the tube. This valve is securely fastened to a float, B, kept in position by means of two arms, *f*, one shown, having perforations in them, which pass over standards, *h*. This float is placed between the ribs, and bottom and floor of the boat, and will rise so as to free the mouth, *c*, of the tube, *b*, on the admission of a very slight depth of water to the hold of the boat by leakage.

The tube is bent around the outer surface of the vessel, A, and permitted to terminate at a lower level than the bottom of the boat. If there be a leak in the bottom of the boat, A, when a proper depth of water has covered the bottom, the float, B, will rise and lift the valve, *e*, from the mouth, *c*, of the tube, *b*, then if the air be exhausted from the tube, *d*, the water will flow from the mouth of the tube, *d*, and the valve continue to fall until the water in the hold is nearly down to the level of the mouth, *c*, of the tube, *b*, when the attraction of the mouth of the tube overcoming the buoyancy of the valve end of the float, B, the valve, *e*, drops upon the mouth, *c*, of the tube, before said mouth has become uncovered for the admission of air. A rise of water in the hold sufficient to overcome the attraction of the mouth, *c*, of the tube for the valve, *e*, lifts the float and opens the mouth, *c*, of the tube, *b*, causing the discharge of the water from the lower end of tube, *d*, to be resumed, which discharge will continue until the valve, *e*, again drops on mouth *c*, as before. In this way, when this mode of discharge is once put in operation, a rise of water in the hold, sufficient to lift the float, will produce an immediate discharge from the mouth of the tube, *d*, which will continue until the depth of the water is so reduced that the valve, *e*, drops upon the mouth, *c*, of the tube, *b*, and stops the flow, thus rendering the operation of this water deliverer automatic, and always preventing a rise of water in the hold above that required to cover the mouth, *c*, of the bent tube, *b*.

When the boat is tied up for the night, with the pipe, *d*, the reel is rolled off the deck, permitting the tube to unwind. The reel, *m*, is run down the bank, or any suitable situation given the tube, *d*, which will bring the end, *q*, lower than the bottom of the boat. Air is then expelled from the tube by a small air pump, or by pouring water into the end, *q*, of the tube, or in any suitable manner. The discharge will then begin and continue, as above described, until the valve, *e*, shuts down on the end, *c*, of the tube, *b*. When the water rises in the hold to lift the float, the discharge is resumed and will continue until stopped by the dropping of the valve, *e*, the operation in practice being as explained from figures 1 and 2. The tube, *d*, discharging the leakage whenever the water rises above the floating point of the float, B, without the necessity of any watch, or the interposition of any human agency.

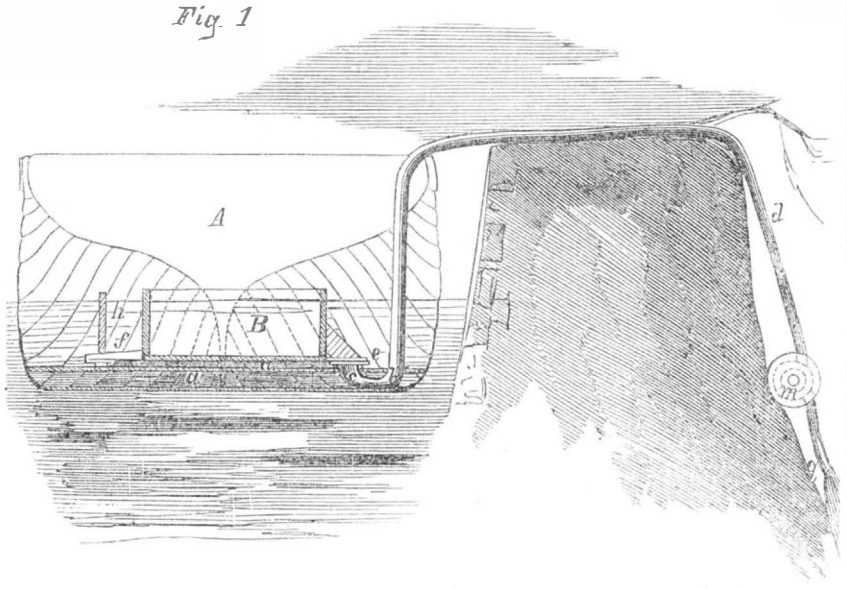
The water discharging arrangement is of the greatest importance on canals, where cargoes are often greatly damaged by negligence on the part of the watch in pumping out the leakage, though it may be rendered available for many other purposes, which require a similar discharging arrangement.

The claim is for the described arrangement of float valve, and bent tube in the bottom of the boat, by which the discharge of water is rendered automatic, and the boat freed from the leakage.

More information may be obtained by letter addressed to the patentee.

FREEING CANAL BOATS FROM WATER.

Fig. 1



SELF-REGULATING HOT WATER FURNACE.

Fig. 1

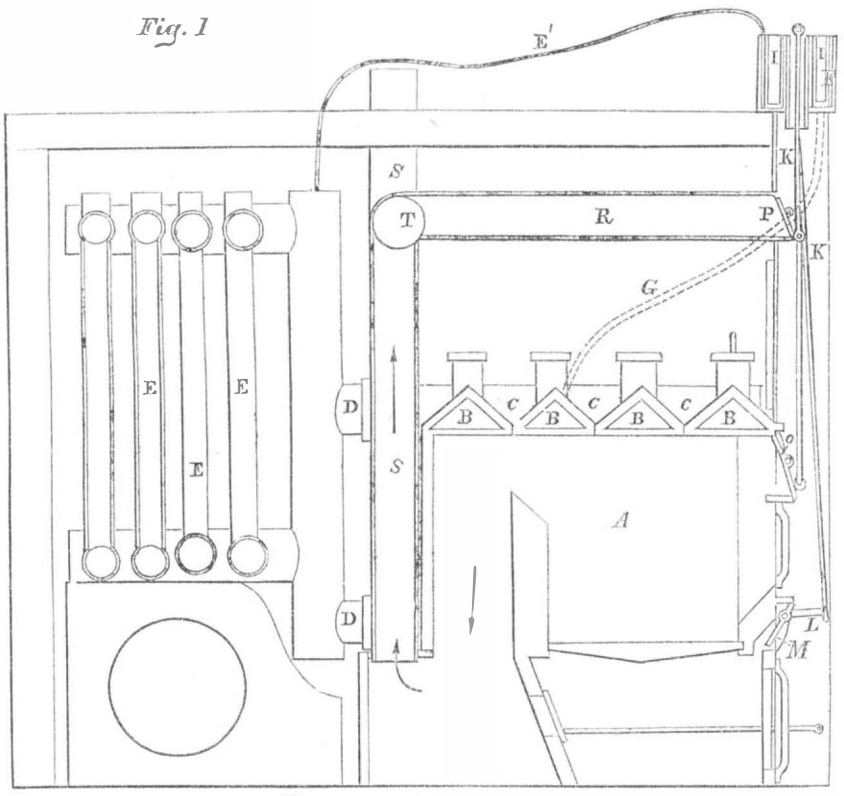
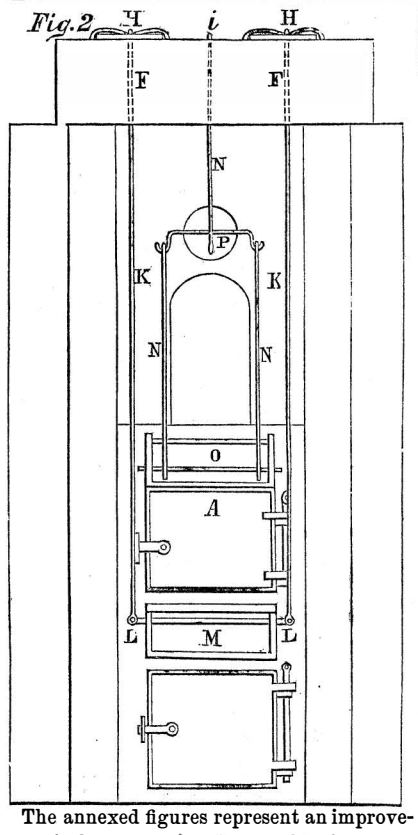


Fig. 2



The annexed figures represent an improvement in hot water furnaces for heating public and private buildings, greenhouses, hospitals, &c., for which a patent was granted to Thomas T. Tasker, of Philadelphia, Pa., on the 5th of December last.

Figure 1 is a sectional elevation through the furnace from front to rear, and figure 2 is a front view of the furnace showing the regulator. Similar letters indicate like parts.

The invention consists in a mode of regulating the temperature of furnaces for hot water apparatus by self-acting valves and dampers of a peculiar arrangement. One evil that has been experienced in all hot water arrangements for heating apartments, is the unequal heat and circulation from the variations in the fire from hour to hour and from day to day; and another is the overheating of the water causing it sometimes to boil and generate steam and straining the joints of the tubes by too great expansion. These are effectually guarded against by the arrangements for controlling the draft through the furnace, the construction and operation of which are as follows:—

A is the furnace, the walls of which are composed of tubes, B, of a triangular form in the cross section, and so arranged that by the meeting of their edges as seen at C, the inner surface of the walls are even, and the outer surface presents a zig-zag line in the cross section. These tubes are connected by main tubes, D D, which convey the heated water to the circulating system of tubes, E E, whence the water is conveyed by pipes, E', to the open vessel, F, and thence down through tubes, G G, to the heaters, B B. In the vessel, F, are three floats, H H and I. To the floats, H H, are connected metallic rods, K K, which take hold of short rods, L L, attached to the draft valve, M; and connected with the float, I, is a rod, N, which takes hold of a valve, O, above the fire, and also hold of a damper, P, placed at the end of the flue, R, which enters the smoke pipe, S, at T. As the temperature of the water in the open vessel, F, rises, it expands and carries up the floats, H H, which through the rods, K K, operate to close the draft valve, M, and check the fire, and the float, I, operates through the rod, N, to open the valve, O, and also the damper P. When fire is thoroughly ignited it is often difficult to check it as quick as necessary by shutting the draft below, and though the admission of a draft of cold air above the fire has a tendency to check it, yet under some circumstances it may for a while increase it, and it is therefore provided for the admission of cold air directly into the smoke flue through damper, P. With these provisions, complete control is obtained over the fire, and this automatic regulation has been found so reliable that where the floats are adjusted for a given temperature, the temperature of the heated air is regular to a degree, as long as a good fire is kept up, and there is no material change in the weather. The floats or rods may be set to give any required temperature by the methods usually employed in pyrometric regulators for stoves, etc. As the expansion and contraction of the water takes place slowly, the action upon the fire is in consequence gradual and not sudden, as in pyrometric arrangements when metallic rods connected with the dampers are expanded by the heat of stoves or fires. The loss of water from the vessel, F, by evaporation is supplied as often as necessary in order to keep the regulators to a uniform action.

The claim is for the arrangement of the two sets of floats operating the valves, M O, and damper, P, and the open vessel, F, in combination with a circulating hot water apparatus, as set forth.

The heating of buildings by hot water is far more healthy than by hot air. Commodore Stockton, T. Kirkbride, M. D., and John Fallon, Esq., Philadelphia, also Dr. Buttolph of the New Jersey Asylum, Trenton, have these furnaces in operation, and have used them for some time with increasing satisfaction.

Mr. Tasker in a letter to us invites the criticism and attention of architects, builders, and citizens to this improvement, and says:—"House warming may now be summed up as follows: make up a fire once a day, (morning) set the regulator by the scale and the furnace will take care of itself and the family into the bargain, until bed time."

The patentee has been engaged for years in manufacturing different kinds of house-heating apparatus. The firm is Morris, Tasker & Morris, 85 South 3rd street, Philadelphia, where this furnace is sold. The firm is always prepared to estimate for warming of buildings of any size—both churches, hospitals, and private dwellings, and from whom more information may be obtained by letter.

Safety Camphene Lamp.

Wm. Bennet, of Brooklyn, N. Y., has applied for a patent for an improvement in lamps for burning camphene, so as to render them more safe and free from explosions. The nature of the invention consists in having the fluid chamber of the lamp partially or wholly surrounded with water, for the purpose of keeping it cool and preventing it from volatilizing more than is necessary to feed the flame, so that the generating of a great pressure of gas inside of the lamp to burst it, will be prevented. This part has no reference to explosions caused by a mixture of air with the gas, but simply an excess of pressure. This lamp is also so constructed that the fluid can be supplied at its bottom, and thus the danger of fluid coming in contact with the flame of the wick is avoided.

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Scientific American.

NEW YORK, JANUARY 20, 1855.

Patent Claims.

The *Railroad Advocate* of the 6th inst., in discussing the claims of Septimus Norris, of Philadelphia, to a ten-wheeled locomotive, uses the following language in reference to the invention of Ross Winans:—

"Another great wrong, we think, is in allowing patentees to claim a *mere result*, where it may be, perhaps, attained in a dozen different ways, and when the patentee has invented and described but one of these methods. Ross Winans has just issued one of his characteristic circulars announcing the extension of his variable exhaust patent. His patent describes one mode of varying the opening of the exhaust pipes, by which the engineer can regulate the draft of the fire when the engine is in motion. He is, however, allowed to claim every other plan for a like purpose, in other words—the result itself."

Our cotemporary is evidently not acquainted with the principles of our patent laws. Patentees are not allowed to claim a *mere result*, unless that result is a new manufacture —like a piece of cloth. If it had said "he," Ross Winans, "is allowed to claim every other *like* plan, for a like purpose," then it would have stated the case correctly; for the means to produce a result are the only patentable features in a machine, not the result itself. If the same result can be produced by a method entirely different, then a patent can be obtained for that method or means, and the patent sustained against Ross Winans or any other person. If the *Railroad Advocate* can do so, it need not fear the result in using the new means. On page 101, this volume, Scientific American, there is a review of the patent case between the American Pin Co., and the Oakville Co., in which this patent doctrine is clearly stated, based on the decision of the U. S. Supreme Court, in the case of O'Reilly vs. Morse. It says, "any one may lawfully accomplish the same end as that described in a patent without infringing it, if he uses means substantially different." This language will show the *Advocate* that it has entertained wrong views respecting patent claims, and its appeal to the railroad officers appointed at Cleveland to "resist energetically the execution of patents granted upon the principle it has discussed" is unnecessary. We would inform the *Advocate*, however, that a mere change of form in the means to produce a result like that accomplished by Ross Winans, will not avail against the honest and just interpretation of patent law. The means to accomplish the same result may be greatly modified, and yet be the same in principle. Any bungler can make an egg sit on a table after he has been shown the way to do it. The Patent Laws are fair and impartial in deciding upon such matters as questions of infringement. They are left entirely to juries who decide upon opinions expressed by competent witnesses—experts—respecting whether the machine (or machines, or implements) claimed to be an infringement, is in principle like that claimed in the patent said to be infringed. Nothing can be more fair and equitable than this, and we have no doubt but the *Advocate* will, when it comes to reconsider the matter, acknowledge this to be so.

American Wool.

Our daily papers state that all the broadcloth manufactories in our country have stopped operations because they cannot compete with the broadcloth manufacturers of France, Belgium, and Germany. The reason given is, that American wool is excellent for warp, making a hard, strong, woolen yarn for this purpose, but is unsuitable for weft, as it wants that silky softness peculiar to German wool, which must be purchased for this purpose, but on which there is a duty of 30 per cent., which gives great advantages to the German manufacturers. This seems to contradict the statements published in many of our papers respecting the superior quality of American fine wool, for which the prize was awarded in competition with German wool in 1851, at the London World's Fair. Mr. Ewbank in his new book *The World a Workshop*, states that the clip of wool in the United States in 1850 only amounted to 52,516,959 lbs., while that of Australia amounts to 70,000,000 lbs., and that of England to 120,000,000 lbs. English wool is not used for broadcloth, it is used chiefly for flannels, woolen yarns, and coarse cloths. The Australian, German, and Cape wool are used for broadcloth; the German—being the finest—is used for making the best quality of this cloth. It is our opinion that our farmers residing in the hilly regions of our southern States can raise as fine wool as the German, and as cheap. It cannot be expected that wool can be raised as cheap in the northern States, because sheep require so much in-door feeding during the winter season, but in Tenessee, Missouri, Georgia, and all the hilly regions of our southern States, no housing nor hand feeding is required for sheep in winter.

Safety of Ships.

The great loss of life and property from shipwrecks of various kinds, during the past year, has concentrated much thought upon the best means of obviating such disasters, at least so far as human agency can. A great number of improvements in life boats and ships have been suggested, and no doubt some good will be the result. The first grand object of thought should be directed to improvements in ships themselves, as life boats are but forlorn hopes. Every ship should be made on the life boat principle, that is, divided into a number of water-tight compartments. We have received so many communications on this subject, that it has been impossible for us to give but few of them a place in our columns. The one by "a practical observer," on page 131, suggesting a central longitudinal position on all ships, and then divided into six compartments, by three transverse partitions, has been spoken of highly.

Good life boats should also be furnished; as every ship should have every possible appliance to save life in any emergency. Jas. J. Eastbrook, of Tompkinsville, Staten Island, proposes gutta percha life boats, made with air-tight tubes, and suggests that a great number of them can be made strong, and yet be packed in a very small space, to be used on extraordinary occasions. The suggestion is a good one, but as we have stated before, the grand object is to make all ships on the life-boat principle.

Walking on the Sea.

Like flying in the air, walking on the water has been often essayed, but still held to be impracticable. If man possessed the ability —like that attributed to the Wandering Jew —of walking upon the great deep, it would invest him with new powers of an extraordinary character. A wonderful approach to the solution of this problem has been made by Wm. K. Phipps, of Farmington, Mass., by the invention of a life preserver, by which he has walked on the sea three miles, from land to land twice, and went ashore within two miles of where the steamer Ocean was burned in Boston Harbor. In a letter to us he states that if he had been on board of that steamer, he would have thought it but a trifling affair to have gone ashore on any of the islands in the vicinity.

Preserving Flour and Meal.

The patented plan of Thomas Pearsall, of Hooper's Valley, N. Y., for preserving flour, meal, and grain from heating and souring, by having an open pipe running through the center of a barrel of flour or meal, or a number of such tubes in bins of grain, we have tested and found to be an excellent invention. A barrel of Indian corn meal put up in May last, with one of his refrigerating tubes, is now as sweet as it was on the day it was packed. This improvement must lead to a great saving to our country, as it is calculated that no less than $5,000,000 is lost annually by the souring of flour and the heating of grain in piles, much, if not all, of which may be saved by the application of this invention, which is neither complex nor expensive, but simple and cheap. A barrel of corn meal, packed in one of Pearsall's patent tubular barrels, arrived in this city on the 7th of this month from Louisville. It was put up in July, and shipped to New Orleans, was kept several weeks in the hold of a steamboat, and afterwards housed in a warehouse until about the 1st of December, and yet is now perfectly sweet.

Securing and Setting Harrow Teeth.

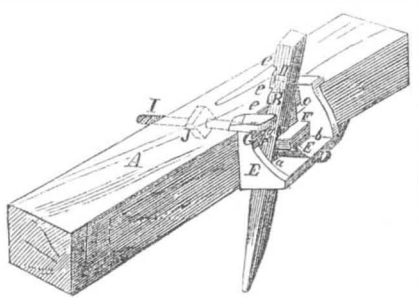

Fig. 1

This figure is a perspective view, representing an improved mode of securing and setting harrow teeth, for which a patent was granted to E. L. Hagar, of Frankfort, Herkimer Co., N. Y., on the 12th ultimo. The improvement relates to a new method of securing the teeth in the frames of harrows, also in rendering them capable of being adjusted from a vertical to an oblique position, and set to any depth desired. A represents a section of a harrow frame, B C. D E is a metal casting set in an inclined recess, cut in the inner edge of the section, A. This casting is provided with two square holes, *a b*, in its lower horizontal portion, D, one running in a vertical, and the other in an oblique direction. The projecting parts, B C E, of the casting form two grooves, F G, of a similar shape and size as the holes, *a b*, one of which runs in an oblique direction in line with the hole *a*, and the other in a vertical direction in line with the hole *b*. On the plate, B, forming the back sides of the grooves, F G, tongues, *c d*, are cast. The tongue *c*, runs at right angles to the groove F, and *d* at right angles to the groove G. These tongues enter notches cut in the sides of the harrow teeth, and aid in keeping said teeth in place. H is a harrow tooth. It is made square or many-sided. *e e e* are the adjusting notches or transverse grooves which are cast in one of the sides of the tooth. These notches receive the tongues as represented. The tooth, H, when it is to be set obliquely, is passed through the hole, *a*, and fitted as shown in the groove, G, and when set in a vertical position, is passed through the hole, *b*, and fitted in the groove, F. I J is a clamp or elbow-shaped screw bolt which passes through the plate, B, of the casting and also through the harrow-frame. This bolt as it has a hook, J, on its inner end, serves for locking the harrow tooth in either of the grooves of the casting, and also as said screw passes entirely through the casting and frame, A, it serves for locking the casting firmly to the frame, A. There is a nut on the outer end of the screw bolt. This nut, by being turned, causes the hook on the screw bolt to bear against the tooth, and thereby causes the parts to be firmly clamped together. The screw bolt, I J, is so arranged in relation to the two grooves, being between them, that its hook, J, serves for locking the tooth, H, in both the positions described.

It is by providing the casting with two grooves, one oblique and the other straight, that the harrow tooth can be adjusted from a vertical to an oblique position, and vice versa, and providing the tooth with a series of notches, *e e e*, it can be set to any depth desired.

Making harrow teeth adjustable as described, is an important idea, for in case their points are broken off they can be sharpened, and the teeth lowered so as to stand even with the others. And also by securing the teeth to the frame, as described, they can, in case they are broken, be removed with ease and facility, and others secured in their places with like facility.

It is also an important idea in connection with the adjusting arrangement, to have the teeth capable of being set straight or oblique, for in case it is desired to harrow shallow plowed soil, then the teeth can be set straight, and in case it is desired to harrow soil which is plowed to a greater depth, then the teeth can be set obliquely, and also lowered to the depth desired. By setting the teeth obliquely they enter the soil more readily.

More information may be obtained by letter addressed to Mr. Hagar, the patentee.

Hulled Grain.

On page 131, in a foot note to Prof. Brainard's essay on "Wheat as an article of Food," it is stated that O. P. Stevens, of Cleveland, Ohio, had invented a machine for hulling any kind of grain, and preparing it according to the method recommended by Prof. B. for making the best kind of food. We have received and tested samples of wheat, Indian corn, and oats, in the state of grits and coarse and fine meal, which was prepared by his machine; and there can be no question about their superiority over fine bolted flour for food, so far as it relates to nutriment and health, and we wish these facts were more generally appreciated.

We have also received from him a number of samples of wheat, barley, oats, and corn, which were hulled in his machine, all of which afford abundant evidence that he has achieved an important improvement in preparing all kinds of grain for food.

Lime Water in Bread.

E. C. Haserick, of Lake Village, N. H., writing to us, says that a pint of lime water added to the ferment for five lbs. of flour will neutralize all fermentation, and color the wheat yellow. In Germany bread is baked for a family about once a fortnight, and two or three bushels of flour are mixed up at one time, with yeast, and left to stand over night, which by being left too long, or if it gets too hot, becomes acidulous or sourish. If lime water is then added, it does good service by neutralizing the excess of acid, and still leaves a sufficient quantity of carbonic acid gas to make the bread light. He believes that a little lime water is good for bread, as set forth by Liebig, but should not be added to the dough until it has *risen*.

The Consumption of Paper.

Forty years ago, three men, by handiwork, could scarcely manufacture 4,000 small sheets of paper in a day, while now, by the use of machinery, they can produce 60,000 in the same time. It has been calculated that if the paper produced yearly by six machines could be put together, the sheet would encircle the world. Nowhere is paper so much valued as in the United States. In France, with 35,000,000 of inhabitants, only 70,000 tuns are produced yearly, of which one-seventh is for exportation. In Britain, with 28,000,000 of inhabitants, 66,000 tuns are produced, while the amount produced in the United States is nearly as great as in France and England together.

Paris Universal Exhibition of 1855.

Almost all the chief seats of manufacturing industry in Britain have reported to the Department of Science and Art the formation of the local trade committees to promote the Paris Exhibition. The Council of the Civil Engineers has addressed a strong letter to its members, urging their co-operation. The Royal Agricultural Society has formed a special committee. The Corporation of Liverpool, it is said, is preparing to exhibit illustrations of its shipping in all its branches. Additional committees of trade, to those generally reported, have been formed in the metropolis for general metal-working, sadlery and harness, leather-dressing, carriages, printing, bookbinding, clothing, boots and shoes, paper-making, chemical manufactures, cutlery and gun-making; so that there appears every promise of a complete and effective display in Paris.—[London Crystal Palace Gazette.

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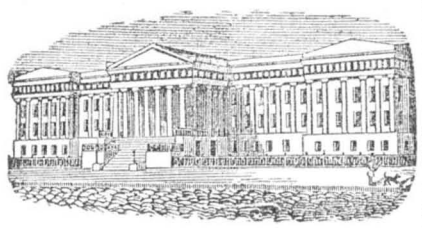

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING JANUARY 9, 1855.

PROPELLER—Charles de Bergue, of Dowgate Hill, London, Eng. Patented in England, April 6, 1854: I claim an apparatus or blade so oscillating or rocking in water or other fluid, on a center or axis worked to and fro, that each of its opposite sides shall alternately present a moving inclined face or surface to the fluid on which it acts, so as to force, displace, or propel the same, or a body floating thereon, such apparatus or blade working or rocking within a case or chamber through which the fluid acted upon is thereby caused to pass, or conversely, in which the fluid in passing, may act on the blade, as described.

MACHISES FOR CRUSHING AND PULVERIZING ORES—Arnold Buffum, of Perth Amboy, N. J.: I do not claim to be the exclusive inventor of corrguations in machines for pulverizing ores. Neither do I claim to be the exclusive inventor of an arrangement for a progressive pulverization of ores. Neither do I seek by this patent to secure the application of the rocking action independent of its combinations.

But I claim the rocking action of the crusher in combination with corrugations on the lower surface of the rocker, and corresponding corrugations on the upper surface of the bed plate, for the purpose and substantially as described.

TURNING IRREGULAR FORMS—William J. Casselman, of Vernon, N. Y.: I do not claim the suspension of a tool from a lever, which transmits to it a movement corresponding with the movement given to the tracer by passing over the undulating surface of the pattern. Neither do I claim the employment of a tool thus suspended above a revolving work table.

But I claim the particular mode described of arrenging and combining a pattern table, two or more work tables, a tracer, and a number of cutting tools to correspond with the number of work tables, that is to say, the work tables and pattern table being arranged with their axes in the same plane, and the tracer, catting tools, and the levers which connect them, being all attached in such a way to a carriage whioh has a movement in a direction perpendicular to the axes of the revolving tables, but parallel to the plane of the said axes, that the points of the cutters and tracer stand in the same plane. or in a plane near to and parallel with the plane of the axes of the tables, and will all bear at all times the same relation to each other and to the pattern and work.

CANDLE MOLD MACHINES—Louis C. Ashley, of Troy, N. Y.: First, I claim the apparatus, F, for centering, cutting, and holding the candle wick, said apparatus being constructed of stationary and adjustable plates, G H, with centering and cutting notches on the stationary plate, and holding or tightening notches on the adjustable plate, constructed and operating substantially in the manner and ffor the purpose as specified.

Second, I claim the wick tightener, J, for tightening the wicks, being constructed and arranged substantially in the manner shown and described.

MACHINES FOR MAKING NUTS AND WASHERS.—Robert Brayton, of Buffalo, N. Y.: I claim the arrangement of the forming box, O, case, P, secured by the plate, Q, to the head block, F'', operated by the piston, F, in the cylinder, D, as described, in their relation to the check, N, check plate, N', check bars, B' B', punch, M, and die, I, for the purposes and as set forth.

Second, I claim the metallic plates, H H, and H' H', as arranged in the slides, G G, in relation to the head block, F'', for the purposes described.

Third, I also claim the spring gauge bar, L, the same being to protect the bed die from the heat of the blank or nut bar, and also to gauge its feed, as set forth.

STOP COCK—D. N. B. Coffin, Jr., of Lynn, Mass.: I claim the arrangement of a rocking lever, substantially as described, so that if turned either way by the hand, it will open the valve and be in such a position that when the hand is removed the valve will be free to close by the pressure of the spring.

I also claim the arrangement of the elastic packing, substantially as described, so that it will perform the two duties of packing the valve stem, and constantly pressing the valve towards its seat.

TORSION PENDULUMS FOR TIME PIECES—A. D. Crane, of Newark, N. J.; I claim the method of compensating the torsion pendulum, by so constructing it, substantially as set forth, as that its weights may swing from the center of their motion in the ratio of the increase of their speed, thus making all its vibrations isochronal.

ARRANGING AND DRIVING CIRCULAR SAWS—W. B. Emery, of Albany, N. Y. Ante dated Nov. 13, 1854: I am aware that circular saws have been made to swing on the axes of their driving pulleys, causing the axis of the saw to move through the arc of a circle having its center in the axis of said driving pulleys, therefore I do not claim that arrangement.

Neither do I claim the moving of the saw axis in a straight line, because this is done in various ways.

But I claim the manner described, of arranging a saw mandrel and its attachment, so as to carry the saw or other cutter through or along the stuff operated upon while such stuff remains at rest and the axis of the pulley driving the saw mandrel, is caused to vibrate or swing, so as to be always at an equal distance from it, and also from its own driving pulley, for the purpose of preserving the proper tension of the belts.

I claim the combination of the three axes, B, F, and J, with the frame, M, and the guide, N, arranged substantially in the manner and for the purpose described.

RATCHET WRENCHES—C. G. Everett, of Brooklyn, N. Y.: Though I do not claim of itself the form of the ratchet teeth as represented, I claim the employment of the application to a wrench, of a ratchet of such form and a sliding stop, acting as described, to stop or set free the said ratchet at pleasure, when the wrench is used fortapping.

FORCING PUMP.—G. B. Farnam, of New York City: I claim arranging the two sets of induction and eduction valves of a double acting horizontal pump on two plates secured, one to the top and the other to the bottom of a water box divided by a vertical partition into two compartments, one end of the horizontal cylinder being secured to one side of the said water box opposite one of the compartments, when this is combined with the connection of the other compartment of the said water box with the opposite end of the cylinder, by means of a side pipe. substantially as and for the purpose specified.

I also claim making the outer end of the bore of the cylinder of an enlarged diameter, with a ring fitted thereto, having a bore of the same diameter as the cylinder, and flaring or trumpet formed at the outer end, substantially as specified, in combination with and as a means of inserting the piston made with conical leather packing rings, substantially as specified.

ENTRY LIGHTS—C. W. Felt, of Salem, Mass.: I do not claim the cock, D, or the link connection, those being substantially old.

But I claim the combination of the link connection with the cock, D, for gas, and the sliding tube around the wick tube for oil, or other liquid illuminating material, in the manner and for the purpose set forth.

DREDGING MACHINES—D. S. Howard of Lyonsdale, N.Y. I claim, first, constructing the bucket with a truss bar across its bottom, which, in addition to stiffening the bottom of the bucket, serves as a guide to the latch and a fastening to the spring.

Second, fastening or attaching the latch to the bucket by a lip on the rear end of the latch, entering an aperture of corresponding size in the bottom of the bucket, the latch being held in its place by a spring bearing on it, at any point between the lip which forms its hinge or fulcrum and the catch.

Third, fastening the buckets to the chains, by a bolt passing through the links of the chain between the joints, and through the ears and hinges of the doors of the buckets at the upper end, and at the lower end by links or clay cutters, as the case may require, one end of which are fastened to the buckets, one on either side, the other end being secured to the chain by a bolt passing through the links between the joints thereof, whereby the chains are allowed to conform to the curve of the wheel, whilst the buckets are suspended between them without conforming to that curve, and whereby the buckets may be readily disengaged from the chains when out of order and replaced with others.

Fourth, I also claim the side or clay cutters, as and for the purpose described.

Fifth, the manner of raising the buckets and chains into their rest position for transportation from place to place, by the combination of the pulley purchase, with the wheel and axle, when attached to a car that carries the upper flange wheels, over which the bucket chains work, operated as described.

Sixth, the self-acting pall, 27, and catch, 25, in combination as described, by which the pinion is thrown out of gear, when the machinery from any cause is turned back.

Seventh, I claim the manner described of feeding by the feeding ways, 1.

Eighth, the manner of feeding or winding the vessel ahead by an eccentric on the main, or any other revolving shaft, N, operating the lever and palls in combination with the windlass. I also claim the combination of the pall, 14, with the vibrating arms, 15, as herein described, whether in connection with the other parts of this feed apparatus or not.

Ninth, the construction and arrangement of the anchors as described, in combination with the winding head, 40, on the counter shaft, f, whereby the vessel may be worked ahead, whether the elevating machinery is in operation or not, or during the time that the feeding ways, l, are being drawn back, preparatory to taking a fresh cut.

Tenth, I claim the manner herein described of constructing the cam or chain wheels, the face plates on the periphery of the wheel being of steel, and the cams removable, so that they may be turned at pleasure.

DEVICES FOR STOPPERS OF BOTTLES—James Hanley, of New York City: I claim the making bottles so that the resistance of their contents shall bear laterally upon the cork or stopple, also the oblique position of the bridge, B, for the purpose as set forth, in the manner stated, or by its equivalent.

OPERATING SLIDE VALVES IN DIRECT ACTION ENGINES—George W. Hubbard, and William E. Conant, of Brooklyn, N. Y.: We claim connecting the slide valve, E, and its tappet rod, F', in such a way as to allow either a certain amount of motion independently of the other, and combining them with a steam cylinder, g, piston, f, slide valve, h, and cut-off, j, so as to operate substantially in the manner described.

HOP EXTRACTING APPARATUS—Adolph Hammer, of Philadelphia, Pa.: I claim the reta ning vessel, A, constructed and arranged substantially as described, for the purpose of producing the extract from hops, required in brewing malt liquors, using the boiling vessel, B, or any equivalent device for the purpose of boiling the hops within the said retaining vessel, substantially as set forth.

MASH MACHINES—Adolph Hammer, of Philadelphia, Pa.: I do not claim the lower rake nor the central shaft and gearing, nor the diaphragm, either singly or in combination with a mash tun, as these or their equivalent devices have been used before for distilling purposes.

But I claim the application and use of the upper rake, constructed substantially as described, when combined with a mash tun, so as to be rotated in an opposite direction to that of the usual rake thereof, and with a more rapid speed, substantially as and for the purpose described.

ROTARY SHINGLE MACHINE—J. W. Hatcher, of Columbia, Tenn.: I claim taking the shingles singly from an oblong feeder, open at the top and bottom, and partially so in front, by cells cut in the wheel. Turning the shingle after one side has been shaved, by means of a cylinder with bars attached, acted upon by a lever, and returned to its place by a spring, and throwing the shingle off the wheel by means of a spring lever after both sides have been shaved. The machine itself, when fed with rifted shingles, shaving both sides and turning out the shingle complete.

ARRANGEMENT OF SLIDE VALVE AND EXHAUST PASSAGES IN STEAM ENGINES—Wm. C. Hicks, of Hartford, Conn.: I claim the producing (by one slide valve and valve seat) of two or more exhaust passages from each end of the cylinder for each induction or steam port, substantially as in the manner described.

SELF-REGULATING WIND MILL—F. G. Johnson, of Brooklyn, N. Y.: I do not claim the method or principle of regulating windmills by the use of weights or govornors revolving with or by means of the windmill and controlling the sails thereof through the intervention of levers and cords.

I claim, first, the combination together of the hub or spoke wheel, the regulating wheel, fig. 3, and the brake wheel, d fig. 5, with their several parts constructed, operated, and controlled substantially in the manner and for the purposes set forth.

Second, I claim the combination together of the weighted levers, x x x, the hub or spoke wheel, and the regulating wheel, fig. 3, substantially in the manner and for the purpose set forth.

COKE OVENS—Guillaume Lambert, of Mons, Belgium: I do not claim combining a series of coke ovens so as to be operated conjointly by the heat and volatile products of one passing to the next.

Neither do I claim heating the charge by means of the escaping products of combustion passing through flues wholly or partly surrounding the ovens.

But I claim the manner described of combining the ovens by means of flues and passages whereby the smoke and gaseous products generated in each during the earlier stages of the calcining process is burned in the next, where the process is at a more advanced stage, and the whole of the products of the combustion of the combined ovens are returned under the first, or that in which the process is least advanced to assist in heating the charge contained therein and expedite the liberation of the volatile products.

REFRIGERATORS—H. L. McAvoy, of Baltimore, Md.: I claim the application of glass to the purpose of lining refrigerators. I claim glass in any form or thickness, enamelled porcelain, or anything substantially the same.

ROTARY PLANING AND MATCHING MACHINE—C. B. Morse, of Rhinebeck, N. Y.: I do not claim any particular form, size, or number of the mechanical devices; neither do I limit myself to any exact combination or arrangement of the same so long as the objects are obtained without changing the principle of operation.

What I claim is the combination and arrangement of the following mechanical elements for the purpose of preparing or reducing and tonguing plank or boards, whether in combination with planing or grooving the same or not; that is, the adjustable cutter carriage, H, carrying the reducing and tonguing cutters, J, graduating lever, O, segmental scale, P, and scales, k k, with the indicating apparatus, T U n, or their equivalent, when arranged and combined for the objects set forth.

RE-WORKING HARD RUBBER COMPOUNDS—Charles Morey, of Paris, France: I claim, first, forming or molding scrapings, filings, dust, powder, or sheets of hard vulcanized india rubber into a compact solid mass, by means of a high degree of heat and pressure, as described.

Second, I claim the application of dust, powder, filings of hard vulcanized india rubber for soldering or uniting hard vulcanized india rubber.

MACHINE FOR PRINTING FROM ENGRAVED PLATES—Robert Neal, of County of Clermont, Ohio. Patented in England, Jan. 18, 1853: I claim the combined apparatus explained, for inking, wiping, and polishing engraved plates, used in copper and other plate printing. The same consisting, first, in the attachment of the engraved plate to an endless chain with which it revolves, while undergoing the several processes of inking, wiping, polishing, and printing, substantially in the manner described.

Second, in the bed plate, H, with its movable plate holder, a', and its strips or bearers, as constructed and operating substantially in the manner described.

Third, in the mode of inking the plate so as to confine the ink to the engraved portion, substantially as described.

Fourth, in the mode of regulating the pressure of the wiping belt upon the plate, substantially as described.

Fifth, in the mode of keeping the polishers clean by an endless belt of cotton or other proper cloth, itself kept in proper order by the application of whiting or other suitable drying powder, and preserved from dust and grit by the action of the revolving brush.

WINDLASSES—Olden Nichols, of Lowell, Mass.: I claim, first, the cylinder, B, made substantially, and operated essentially and for the purpose as set forth.

Second, I claim the action, and co operation of one or more pawls, with the cylinder, B, so arranged with this cylinder as to come in contact with and firmly hold the chain when passing either way over the top of this cylinder, which constitutes, with the pawls, C and M, both the windlass and stopper, when constructed and operated essentially as set forth.

Third, I claim the combination of the cylinder, B, the pawls, C and M, and the adjustable guides, J, all or either two of them, for raising, stopping, and fleeting chain cables, they being constructed and operated essentially and for the purposes set forth.

GRAIN HARVESTERS—John E. Newcomb, of Whitehall, N. Y.: I claim making the hinged apron extensible, substantially in the manner set forth.

I claim the mode of keeping the scythe plate to the shear edges of the guides, said mode consisting in the employment of the grooved pressure plate or bar and set screws for the purposes set forth.

OSCILLATING ENGINES—J. A. Reed, of New York City: I do not claim any of the parts of the oscillating steam engine as my original invention nor any of the parts of said engine by me employed to carry out and effect my said improvements, as my invention, independently of their connection in the combination specified.

But I claim arranging and placing the valves and steam ports on each side of the cylinder, and in combination therewith, so as to let the steam in on both sides of the cylinder at the same time at opposite points, so as that the steam from opposite points may meet in the cylinder, and so balance the pressure as to prevent that severe friction which is occasioned by letting the steam in on one side only of the cylinder at a time.

I further claim the trunnion bearing made adjustable to the trunnion, by the set screws, and so arranged that the conical trunnions may be accurately adapted to the conical seat, as set forth.

MACHINES FOR KNEADING DOUGH—John Louis Rolland, of Paris, France: I claim the use of open frames for kneading dough, composed alternately of long and short blades projecting inwardly from the cross bars, and operating in the manner substantially as set forth.

CARRIAGE CRAMP—Saml. T. Sanford, of Fall River, Mass. I claim constructing the cramps, D, with anti-friction rollers, b, said rollers being provided with flanches, C, and having such a position that the peripheries of the tires and the sides of the felloes of the front wheel will, when the front wheels are cramped, bear against the rollers in the manner as shown and described.

APPARATUS FOR SOLDERING TIN CANS—Wm. J. Stevenson, of New York City: I claim, first, the manner described and shown of constructing the upper extremities of the jaws of the clamp for the purpose of forming a groove or channel to receive a strip of solder, and confine it where its presence is required after being melted.

Second, the manner shown of interposing a strip of wood between the cold iron of the mandrel, and the lap forming the joint or seam of the can, for the purpose of preventing the solder being cooled too rapidly after it has been melted.

LIFE PRESERVING SEATS—Nathan Thompson, Jr., of Williamsburgh, N. Y.: I do not claim hinged or adjustable buoyants attached to the legs of a seat, as the buoyant described are firmly secured to the legs of the stool, neither do I claim a divided top life preserver in combination with legs arranged in such manner that one half of said top may be in front, and the other half in the rear of the person using it as a life preserver, because in this life preserver the whole of the top buoyant is on the same side, or is wholly in front or in the rear of the user. Neither do I claim a buoyant seat generally, nor any special kind of buoyant, nor any precise method of construction, nor any specific materials, at the same time, however, I do not limit myself to any peculiar construction in any special materials, so long as the two parts of a seat provided with top and bottom buoyants, are separated and then connected by means of a hinge and a spring as set forth, or substantially so; neither do I claim any special kind of hinge or spring, nor do I limit myself to the use of one of each in each life preserver, as two, three, or more hinges all in a line, or numerous springs all effecting the same purpose, might be employed, neither do I limit myself to any precise location of the points of separation, so long as that point is so placed that it will serve the described purposes.

But I claim the adapting or accommodating life preserving seats, whose components are a separated buoyant seat' a hinge and a spring combined with each other in the manner and for the purposes substantially as are specified.

STAVE JOINTER—James W. Treadway, of Crown Point, N. Y.: I do not claim the curved bed plate, upon which the stave is bent and held by clamps, except in combination with suitable devices to allow it to rotate partially about a fixed axis, for the purpose of giving any degree of bevel to the joints, and for jointing both sides of the stave without its change of position on the bed plate as fully specified, all of which I claim.

BEEF SPREADER—Frederick Tesch, of Johnstown, Pa.: I claim the construction of a spreader for beef of a stick, a, and tongue, c, operated by a cog wheel and ratchet work substantially in the manner described.

FLOURING MILLS—John L. Yule, of New Orleans, La.: I claim adjusting the parallelism of the upper stone to the lower by means of the swinging frame, K, and pivots, d, the hight of the lower stone being regulated by the step, C, and screws, a a, acting on the spindle, the said spindle having a boss to give the shake motion to the shoe, O, by means of the arm, R, and rod, Q.

TURNING FANCY HANDLES, &c.—Luther Wentworth, of Burlington, Iowa: I do not claim the revolving mandrel, carrying cutters, to revolve round the work while the cutter is stationary.

But I claim, first, the described mode of arranging and operating the cutters, c and d, that is to say, attaching them to arms, D and D', which revolve with the mandrel, and are attached to collars, E and E,' which are allowed to slide upon the mandrel, but not permitted to turn with it, and so guiding the said arms by the inclined slots, l, and studs, j, or their equivalents, that the sliding movement of the collars upon the mandrels produced by cams, I I' or pattern wheels will move the cutters to and from the center of the work for the purpose of turning moldings or grooves at intervals, or giving an irregular profile to the article being turned, as set forth.

I do not claim hanging a rotary saw in a swinging gate, nor allowing the saw spindle a longitudinal movement, under the control of a spring.

But I claim a saw, S, arranged as described upon the lathe in a swinging gate, U, which is weighted at W, opposite the saw, to throw the saw to an inoperative position, but which is to throw the saw into operation at the proper time to cut off the finished articles from the stick by means of a lever, X, actuated by a wiper, v, on a wheel, Y, which is attached to one of the feed rollers, or otherwise so driven as to make one revolution while the stick moves the length of one of the articles to be turned, as set forth.

LOOMS—Joseph Welsh, of Philadelphia, Pa.: I do not confine my claim to the precise construction and arrangement of the lever, G, as shown, nor to the precise mode shown of causing it to produce the effect described.

But what I claim in looms having a moving shuttle box is in combination with the lay, the lever, G, and cam, f, when arranged substantially in the manner described, so that in every change of the shuttle box, the picker shall be released from contact with the shuttle by a positive motion.

PROCESS FOR MAKING JAPANNED LEATHER—Hiram L. Hall, of Beverly, (assignor to James C. Stimpson, of Salem,) Mass.: I claim the improvement in the process of manufacturing patent or japanned leather, which consists in applying to the leather the composition described (prepared either with or without borax) and then submitting it with the varnish coatings thereon to a high degree of heat, whereby the surface of the leather is so matured as not to be affected by any temperature or any change of climate.

MACHINES FOR FORMING KETTLES FROM METAL DISKS—Lyman C. Camp, of Berlin, Conn., (assignor to Phelps, Dodge, & Co., of New York City): I claim the employment of a pair of rollers, O O', in combination with a pair of clamps, I I' or its equivalent, all arranged, adjusted, and operating substantially in the manner described, for the purpose of operating upon a disk of brass or other metal, to roll out the said disk from a certain distance all round its center to its edges, and bend or draw the part so rolled to form an angle with the central part, and cause it to be distended radially or towards the edges, and to be contracted circumferentially, thereby forming the said disk by successive stages into a kettle or vessel, or other similar article with conical or cylindrical sides without employing a mold or form, as set forth.

MANUFACTURING METAL TUBES—Wm. Beasly, of Smethwick, (assignor to I. and J. W. Brett, of Westminster, C. W. Tupper, of London, and Wm. Beasly, of Smethwick,) Eng.: I do not claim subjecting metal tubes to cross rolling, as that has been done before.

But I claim the forming of a metallic tube by winding a strip of metal spirally on a mandrel, and welding it by cross rolling, substantially as described.

LOOMS—Wm. Tongue, of Philadelphia, (assignor to Wm. Tongue and James Buckley, of Sadsburyville,) Pa.: I do not claim the double pulleys, C, nor the levers, D, nor the wires, a.

But I claim the combination of the continuous cord, A, with the pulleys, B, and double pulley, C, substantially in the manner and for the purpose described, irrespective of the number of the double pulleys, C, or pulleys, B, as these are intended to be increased or diminished, as the number of sheds wanted may require.

DESIGN

LANTERNS—Wm. D. Titus, of Brooklyn, N. Y.

NOTE—In the above list of patents we recognize twelve names whose applications were made through the SCIENTIFIC AMERICAN office. There are several patents in the above list which are very valuable, and standing prominent in the list are those of Guillaume Lambert, for coke furnace, and L. C. Camp, for forming metal kettles.

Window Blinds.

An application for a new method of operating window blinds has been made by Charles Isbel, of Woodbury, Ct., who has assigned it to Andrew Root, of the same place. The object of it is to afford a ready and convenient means of opening and closing the slats from the interior of an apartment, without opening the window for that purpose. One of the tenons of one of the slats of the blind is elongated and made to project through and beyond the stile of the blind, and is furnished at its outer end with a worm wheel, which enters a cavity in the window frame when the blind is closed, and where it meshes with a screw pinion having a thumb piece on the inside of the window frame, by turning which (as all the slats in the usua manner are connected with one or two vertil cal rods,) the slats are set at any angle, or are closed. This improvement can be applied with very little alteration, to common blinds. The improvement is a very neat and convenient one.

Regulating Draft of Furnaces.

R. McDowell, of Trenton, N. J., has taken measures to obtain a patent for controlling the exhaust steam to regulate the draft of locomotive furnaces, and the furnaces of other steam engines. The improvement is intended more particularly to be applied to coal-burning locomotives, and consists in a certain arrangement of valves applied to an exhaust box, which receives the exhaust steam from the exhaust pipe or pipes, whereby the exhaust can be contracted or enlarged, to increase or diminish the draft, without disturbing its central position below the smoke pipe, and without closing it towards the sides, which would interfere unduly with the draft on the flues near the sides of the boiler.

Hemp and Flax Brake.

Another improvement in machinery for breaking flax, that is, separating its fibrous from its woody parts, has been made by D. W. Hughes, of New London, Missouri, who has taken measures to secure a patent.—Three breakers like heavy blunt knives, are are attached to levers, and two of them are so arranged that they may be brought, while the machine is in operation, to the proper distance apart, to suit the nature of the material to be operated upon, and may be caused to approach each other or nearer to the line of operation to the corresponding breaker, so that the operator can adapt it to break any kind of hemp, whether it be well rotted or not, and to act upon large and small bunches, in short he has perfect control of the breakers while the machine is in operation.

Explosive Alarm Signal.

The Portland (Me.) *Argus* says: "We lately witnessed some experiments to test the utility of this detonating signal, manufactured by J. F. Wilkinson, Syracuse, N. Y. The signal consists of a small tin box filled with a composition that explodes by violent percussion. The box is attached by straps of tin to the rail, and is exploded by the passage of the engine wheel over it, making a report like that of a pistol. The result shows that, however useful the signal may be as one means to warn engineers of danger, they were not so reliable for that purpose as at all to dispense with the flag signal."

[We rather think Mr. Wilkinson obtained some of his ideas from the columns of the SCIENTIFIC AMERICAN, as such signals were described in our last volume.

A panoramic tableaux of the life of our Savior is now on exhibition at Hope Chapel, No. 720 Broadway, by J. B. Nixon. We are assured that the exhibition is entertaining and every way worthy of public patronage.

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TO CORRESPONDENTS.

J. A., of N. H.—The idea of operating switches by the weight of the locomotive is not new. If you have a new combination of mechanical parts you may perhaps be able to get a patent.

M. R., of Me.—The principle shown in your drawing is well known and in general use hereabouts. We do not regard it as patentable.

M. K., of ——.—Your locomotive is not new; neither is your boiler alarm.

A. S. L., of Tenn.—We cannot furnish a recipe for a liquid blacking capable of keeping the leather soft and pliable, and at the same time produce a brilliant polish. We cannot recommend you to procure an electro-magnetic engine of the kind mentioned. It cannot be made serviceable; we have no data upon which to calculate its running cost. We cannot give you the address of Mr. Osborn.

E. C., of Ill.—If you will send us a sketch of your machine for sawing barrel staves we can tell much better as to the probability of your being able to patent it. There are patented machines for sawing stairs of the required shape, without the necessity of springing them; yours may be differently constructed.

J. P. A., of Ind.—A clamp for preventing the driving wheels of locomotives from slipping on inclines, was patented some four years since. We should think it the same as yours; but if you wish more positive advice upon the subject we shall be happy to render it upon receipt of a proper sketch of yours.

N. H. W., of Mass.—We have never known of a favorable result from the use of any compound for restoring the hair in cases of baldness. A great variety of specifics are advertised for this purpose, but they are usually unworthy of any confidence.

J. B. G., of Mass.—There is nothing patentable in your window sash apparatus. Apply to a perfumer in Boston for the perfumes.

S. R. L., of Ind.—Without having copies of both the patents before us we cannot inform you.

L. G., of N. Y.—It is not new to attach a tail to a ball. We have seen the same thing before.

H. D., of Wis.—The latest work on milling is that of W. C. Hughes, published by H. C. Baird, of Philadelphia, Pa. Write to him for information about price.

W. B., of Pa.—We never heard of an article called "incorporated oil."

T. K. A., of N. Y.—We hope your patent will issue soon. We have no knowledge of an application by another person for the same invention; we think it is "a flying report."

S. & C., of Mass.—You had better wait until the patent issues before having the inquiry prepared.

M. P., of——The fusible plugs to which you refer are used for the purpose of detecting a deficiency of water in the boiler, by being placed below the water line, where they will melt when the flues get hot. Patents in England are not granted for any of the colonies.

J. M. W., of Mich.—If yon send specifications we can give you our opinion as to the probability of obtaining a patent. Cannot warrant one. We understand your churn. It is a very old device. We do not think there is the least possibility of obtaining a patent. We are frequently applied to patent the same thing.

R. McC., of Texas—The caloric ship Ericsson has proved a failure, and the hot air engines have been abandoned, so far as this vessel is concerned. Hot air can never be used economically in competition with steam as a motive power. We have shown this theoretically, and the Ericsson practically. If air is more economical than steam, some person has yet to demonstrate this by deeds—words will not do. The application of steam like water in a Barker's mill has been tried a number of times, but it is an expensive method, as the only part of the force obtained is that of re-action.

S. M., of Ohio—There is a patent on locomotives for ascending inclines. If you will send us a sketch of your proposed improvement we will examine it.

M. C. F., of Pa.—You can withdraw the twenty dollars refunded on rejected applications at any time.—There is no limit to this privilege. We have not the work you refer to in our possession.

W. M., of Iowa.—Such an engraving as you speak of would cost from 20 to 50 dollars. Its cost will depend upon the size and quality of the engraving. You can have it done in our office.

M. C., of Ala.—Silver ore, if a sulphuret, which is the most common, is easily known, as it has a silvery appearance. The analysis of any ore is both troublesome and expensive. We hope you will discover the mine.

G. S., of——A small work published by Henry C. Baird, Phila., describes the method of gilding and painting on wood.

J. A. G., of Pa.—Melted cast iron contracts on cooling. We do not know what objections can be raised to making the flanges on locomotive drivers one inch broader.

E. P. E., of Mich.—Yours has been received.

W. R. M., of Ind.—The manufacture of lard oil requires expensive machinery. Trowel plate is all imported; this we have been told.

S, N., of Ind.—Some of your remarks on comets are very good, but you have not prepared the article with sufficient care.

A. P. B., of Vt.—We do not understand the object or utility of your improvement.

C. H., of Ohio—The most simple way of wetting drawing paper to put on a board, is to apply it with a clean sponge, and allow it to saturate before you put it on the board. Chamberlain's patent board is perhaps the very one you want. We cannot answer your last question.

W. W., of Pa.—We cannot give you positive information respecting the Bunker Hill pendulum experiment, excepting that we have been told that the influence of the sun upon one side of it prevented accurate experiments.

G. B. S., of Md.—Yours has been received.

C. L., of Ct.—Quite a number of ships have strong false bows; it is a good plan of building them.

R. S, of Ct.—A number of breech-loading muskets and rifles have been published in the Sci. Am. Balls have been used for exploding when they strike, but are not in general use. A number of breech-loading cannons have been noticed in our columns. The electric spark would be too expensive for a musket.

Money received on account of Patent Office business for the week ending Saturday, Jan. 13:—

O. F., of O., $25; W. & H., of N. Y., $30; M. F. C., of N. J., $15; B. M., of N. Y., $75; W. F., of N. Y., $10; D. H. P., of—$25; L. B. D., of R. I., $100; J. J. B., of N. Y., $30; S. T., of Ind., $70; J. T. P., of O., $25; M. M., & J. C. R., of Mass., $30; G. B. A., of Ct., $30; D. W. P., of N. Y., $30; A. Van D., of N. J., $45; J. H., of O., $25; J. R. A., of N. Y., $25; G. W. Z., of O., $20; W. S., of Ind., $25; S. N. C., of Ill., $12; J. C., Jr., of Ct., $55; H. S. A., of N. Y., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Jan. 13:—

O. F., of O.; N. C. S., of Ct., (2cases); H. S. A., of N. Y.; M. F. C., of N. J.; J. S. J., of N. Y.; W. F., of N. J.; C. A., of N. J.; S. T., of Ind., (2 cases); L. I., of N. Y.,; J. T. P., of O.; J. H., of O.; J. R. A., of N. Y.; S. N. C., of Ill.; W. S., of Ind.

Important Items.

Back Numbers and Volumes—We have the following numbers and volumes of the Scientific American, which we can supply at the annexed prices:—Of Volume 5, forty numbers; price in sheets, $1; bound, $1,75. Of Volume 6, all; price in sheets, $2; bound, $2,75. Of Volume 7, all; price in sheets, $2; bound, $2,75. Of Volume 8, none complete, but about 30 numbers in sheets, which will be sold at 50 cents per set. Of Volume 9, complete in sheets, $2; bound, $2,75.

☞We are able to furnish all the back numbers of the present volume of the Scientific American, and to new subscribers we shall continue to send the back numbers as long as we have them, so as to render their volumes complete.

Patent Claims—Persons desiring the claim of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office, stating the name of the patentee, and enclosing $1 for fees for copying.

Patent Laws, and Guide to Inventors—We publish and have for sale, the Patent Laws of the United States—the pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office Price 12½ cents per copy.

Receipts—When money is paid at the office for subscriptions a receipt for it will always be given, but when subscribers remit their money by mail, they may consider the arrival of the first paper a bona fide acknowledgement of the receipt of their funds.

Terms of Advertising.

4 lines, for each insertion,	$1,00
8 " " "	2,00
12 " " "	3,00
16 " " "	4,00

Advertisements exceeding 16 lines cannot be admitted. neither can engravings be inserted in the advertising columns at any price.

☞ All advertisements must be paid for before inserting.

IMPORTANT TO TANNERS, Wool Pullers. Morocco Manufacturers, &c. Letters patent having been granted to Messrs. WARD & BOOTT of Boston. Mass., for important improvements in the process for removing the hair from hides and preparing them for tanning the undersigned have been appointed sole agents for the sale of rights, and are prepared to negotiate with parties wishing to avail themselves of these improvements. Circulars containing full information in regard to the advantages which this process possesses over any methods heretofore used. with testimonials from respectable tanners who have fully tested its value, will be forwarded on application, and samples of the leather manufactured from Buenos Ayres, Calcutta, African, and slaughter hides, also from English dry and salted, and slaughter calf, goat and sheep skins, may be found at Mr. PACKER'S, Boston. and will be exhibited in other cities as soon as the necessary arrangements can be made. Experienced Tanners who have been disappointed in many of the processes heretofore introduced, for which great advantages have been claimed, unhesitatingly pronounce this the most valuable improvement yet made in this important branch of manufacture. All communications should be addressed to Charles Packer, No. 26 North Market street, Boston, Mass.; or Wm. C. Parker, Salmon River, Oswego County, New York.
1* CHARLES PACKER.

NOTICE—The connection in business between SHERRY & BYRAM is hereby dissolved by mutual consent. JOHN SHERRY is fully authorized and empowered to settle all out-standing claims, and to whom all bills must be presented for payment.
JOHN SHEERY.
EPHRAIM N. BYRAM.
Sag Harbor, Jan. 1st, 1855. 19 3

AGENTS—(Ladies or Gentlemen) wishing to engage in the sale of an article (patent applied for) which is needed in every family—large profits and no risk—would do well to address GUY KENDALL & CO., Rochester, N. Y. 1*

IMPORTANT IMPROVEMENT—In Rotary Planing, Tonguing and Grooving Machines. Patented November 21st, 1854. These machines have been thoroughly tested, and their superiority over all others proved beyond a doubt, They will plane very much better and faster than any others now in use, never tearing or throwing out loose knots. Applications for rights and machines, or for further particulars can be made to the patentee. JAMES A. WOODBURY,
Winchester, Mass., Jan. 5, 1855. 18 4eow*

MODELS FOR INVENTORS—CHARLES KIRCHOFF, Manufacturer of Models, Scientific, Philosophical and Artistic Instruments, Machines. &c., corner of West Broadway and Thomas street, New York. 19 4*

A PROFITABLE INVESTMENT—Can be made by purchasing rights of my Patent Tenoning Machine, patented Aug. 29th, 1854, pronounced by good mechanics to be the best machine in use; is adopted to all kinds of work including double and cap tenons for car or other heavy work. will do the work of from three to eight ordinary machines, can be set in one minute for boring or squaring the ends of stuff for rights or machines. Address C. P. S. WARDWELL, Lake Village, N. H. 19 4

AN ENGINEER—At present engaged in constructing Machinery for the Furnaces, Mills, and Mines of the Montour Iron Works, desires another engagement in connection with an Engine Shop and Foundry, Iron Works, or Railroad. Long experience in business, and designing, draughting, and constructing machinery, fully qualifies him to fill the desired situation. Testimonials from the party with whom he is now engaged, and from well known engineers can be produced. Address Box 3, P. O., Danville. Montour Co., Pa. 19 2*

ENAMELLED CA'ST IRON HOLLOW WARE—Persons desirous of embarking into this lucrative and safe business, can hear of a practical competent enameller by directing (post-paid) to WM. STINE, Chatham Square P. O., New York. 19 2*

ENGINEERING—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc.
CHARLES W. COPELAND,
14 13eow Consulting Engineer, 64 Broadway

American and Foreign Patent Agency.

IMPORTANT TO INVENTORS.—MESSRS. MUNN & CO., Publishers and Proprietors of the Scientific American, continue to prepare specifications and drawings, and attend to procuring patents for new inventions in the United States, Great Britain, France, Belgium, Holland, Austria, Spain, etc., etc. We have constantly employed under our personal supervision a competent board of Scientific Examiners, which enables us to despatch with great facility a very large amount of business. Inventors are reminded that all matter intrusted to our care are strictly confidential, and hence it is unnecessary for them to incur the expense of attending in person. They should first send us a sketch and description of the invention, and we will carefully examine it, state our opinion, and the expense of making an application, if deemed new and worthy of it. Models and fees can be sent with safety from any part of the country by express. In this respect New York is more accessible than any other city in our country. Circulars of information will be sent free of postage to any one wishing to learn the preliminary steps toward making an application.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

It is very important that trustworthy and competent agents should be employed in securing patents, as great care is necessary in the preparation of the papers, as well as integrity in taking proper care of the case until the inventor is duly invested with his legal rights. Parties intrusting their business in our hands can rely upon prompt and faithful attention. Most of the patents obtained by Americans in foreign countries are secured through us; while it is well known that the largest proportion of patents applied for in the U. S., go through our agency.

The offices of Messrs. Munn & Co.'s American and Foreign Patent Agency are at 128 Fulton Street, New York; London, No. 32 Essex st., Strand; Paris, No. 29 Boulevard St. Martin: Brussels, No. 6 Rue D'Or.

United States Patent Office,
Washington, Dec. 15, 1854.

ON THE PETITION of William Perrin, of Lowell, Mass., praying for the extension of a patent granted to him on the 24th day of March, 1841, for an improvement in "machine for cutting square joint dovetails," for seven years from the expiration of said patent, which takes place on the 24th day of March, 1855.

It is ordered that the said petition be heard at the Patent Office, on Monday, the 12th of March next, at 12 o'clock. M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing: all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 2nd of March; depositions and other papers relied on as testimony, must be in the office on or before the morning of that day, the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.: Pennsylvanian, Philadelphia, Pa.: Scientific American, New York, and Patriot. Concord. N. H., once a week for three successive weeks previous to the 12th day of March next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S.—Editors of the above papers will please copy, and send their bills to the Patent Office, with a paper containing this notice. 17 3

United States Patent Office,
Washington, December 9. 1854.

ON THE PETITION of Moses and Samuel Pennock, of Kennett Square, Pennsylvania, praying for the extension of a patent granted to them on the 12th day of March, 1841, for an improvement in "seed drills," for seven years from the expiration of said patent, which takes place on the 12th day of March, 1855:

It is ordered that the said petition be heard at the Patent Office on Monday the 26th day of February next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 16th day of February, 1855; depositions and other papers relied upon as testimony must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered. also, that this notice be published in the Union. Intelligencer, and Evening Star, Washington, D. C.; Pennsylvanian, Philadelphia, Penn.; Scientific American, New York; and Enquirer, Cincinnati, Ohio, once a week for three successive weeks previous to the 26th day of February next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 17 3

United States Patent Office,
Washington, Jan. 8, 1855.

ON THE PETITION of Jesse Reed, of Marshfield, Mass., praying for the extension of a patent granted to him the 16th day of April, 1841, for an improvement in "Pumps," for seven years from the expiration of said patent, which takes place on the 16th day of April 1855:

It is ordered that the said petition be heard at the Patent Office on Monday, the 2nd day of April next, at 12 o'clock M., and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days from the day of hearing. All testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the Office, which will be furnished on application.

The testimony in the case will be closed on the 22nd day of March. 1855; depositions and other papers relied upon as testimony must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvanian, Philadelphia. Penn.; Scientific American, N. Y.; and Boston Post, Boston, Mass., once a week for three successive weeks previous to the 2nd of April next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice 19 3

OIL! OIL! OIL!—For railroads, steamers, and for machinery and burning—Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough, and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer.
F. S. PEASE, 61 Main st., Buffalo, N. Y.
N. B.—Reliable orders filled for any part of the United States and Europe. 19 eowtf

MACHINISTS TOOLS—SHRIVER & BROS., Cumberland, Md., (on B. and O. Railroad, midway between Baltimore and the Ohio River,) manufacturers of Lathes, Iron Planers, Drills and other machinists tools 50 6m*

MACHINE GROUND CIRCULAR SAWS—(Patent applied for.) Mill men would do well to try these saws, are perfectly free from thin or thick places, can be used thinner and with less sett, and run faster than any other hitherto made. All diameters and thicknesses warranted perfectly true. HENSHAW & CLEMSON, 31 Exchange street, Boston. 19 8*

DICTIONARY OF TECHNICAL TERMS—In French, English, and German. A new work presenting all the terms used in science and art. The terms are first given in French, then in English and German. It is the first of three volumes arranged differently, and is a very useful work. For sale at this office, price $1,31

THE FRENCH EXHIBITION—Parties who have applied for space in the French Palace of Industry, and who do not intend to be present at the Exhibition, are recommended by the undersigned to arrange with Messrs. Gardissal & Co., No. 29 Boulevard St. Martin, Paris, who are prepared to put upon Exhibition, attend, and effect sales of articles intrusted to their care. It is a responsible concern. S. H. WALES, State Commissioner, Scientific American Office.

YOU CAN GET THE NEW YORK WEEKLY SUN three months for 25 cts.; six months 50 cts.; one year, 75 cents, 16 months, $1. Or three copies one year, $2; eight copies $5; twenty-five copies $15; and by canvassing for subscribers you may get one of the five cash prizes $50, $20, $15, $10, and $5—for the largest lists sent in before 3rd Feb.—Specimen copies gratis.—Send letters and money (post-paid) to MOSES S. BEACH, Sun Office, New York. 6

BUFFALO MACHINERY DEPOT—Terrace St. and 36 Lloyd st., Buffalo; J. W. HOOKER, Proprietor, H. C. Brown, Superintendant, offers for sale Machinists' tools of all kinds: Engine Lathes, Planers, Drills, Chucks, Boring Mills; also machinery of all kinds on hand or furnished to order. 7tf

CIRCULAR SAW MILLS—The undersigned manufacture for sale Child's Patent Circular Saw Mills for cutting lumber from logs of any size, with 40 and 24 inch, to 48 and 54 inch saws. Also single mills with 36 inch to 72 inch saw. These machines are warranted capable of cutting more lumber in a given time than any other saw mills in use. H. WELLS & CO., Florence, Hampshire Co, Mass. 17 4*

STAVE AND BARREL MACHINERY—Hutchinson's Patent. This machinery which received the highest award at the Crystal Palace, is now in daily operation there. Staves, heading, &c., prepared by it are worth to the cooper 20 to 40 per cent. more than when finished in any other way. Special attention is invited to the improved Stave Jointer. Apply to C. B. HUTCHINSON & CO., Crystal Palace, or Auburn, N. Y. 13 tf

PATENT DRIERS—Zinc Driers, Graining Colors, Stove Polish, Gold Size, &c., &c., 114 John street, New York. QUARTERMAN & SON, Manufacturers. 1 6m

NEW HAVEN MANUFACTURING COMPANY Machinists' Tools. Iron planers and Engine Lathes of all sizes. Hand Lathes, Gear Cutters, Drills, Bolt Cutters, Chucks, &c., on hand and being built by the quantity, which enables us to sell low. For cuts giving full description and prices, address New Haven Manufacturing Co., New Haven, Conn. 13 tf

HARRISON'S GRAIN MILLS—Latest Patent.—$1000 reward offered by the patentee for their equal. A supply constantly on hand. Liberal Commissions paid to agents. For further information address New Haven Manufacturing Co., New Haven, Conn., or to S. C. HILLS, our agent, 12 Platt Street, New York. 13 tf

STEAM ENGINES AND BOILERS FOR SALE. One second hand five-horse engine, with tubular boiler. One second-hand two horse portable engine and boiler. THOS. PROSSER & SON, 28 Platt street, 14tf

FELTING FOR STEAM BOILERS AND SHIPS—Manufactured by J. H. Bacon, Winchester, Mass., for sale at W. & J. MORRISON'S, No. 9 Maiden Lane, N. Y., and T. C. BACON & CO.'S, corner of Union and North sts., Boston, Mass. 15 5*

NORCROSS ROTARY PLANING MACHINE—The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringement of the Woodworth Patent.

Rights to use N. G. Norcrois's patented machine can be purchased on application to N. G. NORCROSS,
208 Broadway, New York.

Office for sale of rights at 208 Broadway, New York; Boston, 27 State street, and Lowell, Mass. 16 6m

CHEAP LIGHT—A. M. MACE, manufacturer of atmospheric or Benzole Gas Machines: size from 2 to 1000 lights. All orders promptly executed corner of Main street and Harrison avenue, Springfield, Mass. 15 3m*

IRON PLANERS—NEW PATTERN—Now building, and for sale on better terms than any others in the country of same quality. Address New Haven Manufacturing Co., New Haven, Conn. 11 tf

IRVING'S PATENT SAFETY CIRCULATING STEAM BOILER—This is the most safe, economical, compact, and convenient boiler devised, occupying less than half the space, consuming only half the fuel, generating more steam of a better quality, and requiring less labor in management and use than any other known. The rapid and powerful circulation which it secures, prevents incrustation or scale, and preserves the internal surfaces fresh and clean. On this account it is believed to be better adapted to salt or turbid waters than any boiler extant. Its compactness, its strength, its economy of space and fuel, and its rapid generation of steam, peculiarly adapt it to the navigation of our western rivers, as well as to all stationary, portable, and marine purposes. The attention of all consumers of steam, of mechanics and engineers, is invited to a critical examination of its merits. Boilers of all sizes furnished on short notice. Rights negotiated and circulars obtained on application at the office of the Company. W. F. PHELPS, Sec.'y Irving Boiler Company, 347 Broadway. 10 6eow*

PORTABLE STEAM ENGINES.—S. C. HILLS, No. 12 Platt st., N. Y., offers for sale these Engines, with Boilers, Pumps, Heaters, etc., all complete, and very compact, from 2 to 10 horse power, suitable for printers, carpenters, farmers, planters, &c. A 2½ horse can be seen in store, it occupies a space 5 by 3 feet, weighs 1500 lbs. price $240; other sizes in proportion. 8 e3w

THE ARTISAN JOURNAL—A Monthly Record of the Process of Civil and Mechanical Engineering, Steam Navigation. Shipbuilding, and the Industrial Arts, Chemistry, &c. Published in London, and for sale in numbers and volumes by CHAS. H. HASWELL, Consulting and Superintending Engineer, Bowling Green, New York. Drawings and specifications of Steam Machinery, in all its branches, furnished upon application. 14 1amtf

A. B. ELY, Counsellor at Law, 52 Washington st., Boston, will give particular attention to Patent Cases. Refers to Messrs. Munn & Co., Scientific American. 16 1y*

VAIL'S CELEBRATED PORTABLE STEAM Engines and Saw Mills, Bogardus' Horsepowers, Smut Machines. Saw and Grist Mill Irons and Gearing, Saw Gummers, Ratchet Drills, &c. Orders for light and heavy forging and castings executed with dispatch. 8 1y* LOGAN VAIL & CO., 9 Gold st., N. Y.

NORTHVILLE MACHINE WORKS—Manufactory of Machinists Tools, consisting of Engine Lathes, Power Planers, Hand Lathes, Engine Lathe for turning chair stuff, all of the most improved patterns and quality of workmanship. Worcester, Northville, Mass.. Augus 9, 1854. TAFT & GLEASON. 50 1y*

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Science and Art.

Comparison of Iron and Wooden Vessels.

M. Nillus, of Havre, makes some interesting remarks on the comparative advantages of wooden and iron vessels, which we here present in an abridged form. Almost all vessels, whether in wood or iron, have hitherto been constructed on a wrong principle. The greatest possible strength has been given to the sides and bottom, while the deck has been neglected. But a ship should be regarded as a great tube or box, capable of sustaining a load at its middle while suspended at its ends, or conversely, of sustaining loads at each end while supported at the middle. To obtain this result with the least weight of materials, the upper and lower parts of the vessel, otherwise the deck and the bottom, should be the strongest. Instead of this the deck is usually slight and weak, and is generally regarded only as a platform to be used for working the ship, or as a covering to keep the water from the interior of the hull. Iron ships should form a tube, closed at each end, and be strengthened by ribs and cross-beams, forming continuous pieces, so that the tube might be considered as strengthened by a series of rings. The sides should, of course, be rivetted to the ribs, so that the whole would form something analagous to a tubular bridge. Even the present construction of iron steamers is much superior in solidity to that of wooden ships, as a few examples will suffice to show. The *Great Britain* remained during the entire length of a severe winter, fixed on the rocks at Dundrum, and when released from her critical position was capable of being so repaired as to become a packet ship to Australia. A recent example is furnished by the *Ward Queen*, constructed by Scott Russell, with a length twelve times as great as her maximum breadth, a very high proportion for a sea-going vessel. This small steamer was employed between New Haven and Dieppe at the period of the accident. In entering the port of New Haven, at low water, with the channel too shallow, she grounded heavily, and was suspended by the middle. A breaker took her broadside on, and cast her on the beach, where the passengers easily and safely disembarked. Notwithstanding the force with which she was cast ashore, she was again launched without any strain, and was able to proceed to London for examination. After a careful inspection no important injury could be discovered. A wooden vessel of the same dimensions, under similar circumstances, would doubtless go to pieces, or at least be seriously damaged.

History of Reaping Machines.—No. 15.

On the 25th June, 1845, a patent was granted to E. C. West, of Bradford, Vt., for a rotary cutting reaper, which embraces a very ingenious gathering hand with scythes fastened to the lower end of a vertical shaft. To the cutter shaft there were secured cradle fingers, which, as they rotated, passed between the fingers of a vibrating hand which caught the straw and carried it when cut to an apron, which conducted it to a thrasher. The gathering hand was vibrated by a lever, which received motion from a cam groove in the upper end of the vertical scythe shaft.

On September 20th, the same year, a patent was granted to F. Wood, of Upper Freehold, N. J., but it only embraced the combination of a sheaf-box with the platform into which the grain was thrown before being deposited on the ground.

On March 7th, 1846, William F. Ketchum, of Buffalo, N. Y., obtained a patent for his mode of constructing rake teeth, and carrying the cut grain to the platform.

Jeremiah Darling, of Adrian, Michigan, obtained a patent on March 7th, 1846, for a gathering movable platform of slats with pointed teeth, combined with a cutting and thrashing apparatus.

C. Foster, of Laporte, Ind., obtained a patent on April 18th, 1846, for a rake in connection with the floor of his platform.

Alex. M. Wilson, of New York, obtained a patent on Sept. 3, 1846, for making the heel of his cutters rounded or a rotary machine. There was also a grinding wheel placed so as to grind and sharpen the upper bevelled face of the cutters. The cutting wheel was so arranged as not to be affected by the horses walking on unequal ground.

Isaac Lard, of Ashley, Missouri, obtained a patent on Nov., 20th, 1846, for an arrangement of a revolving rake to take the grass from revolving scythes.

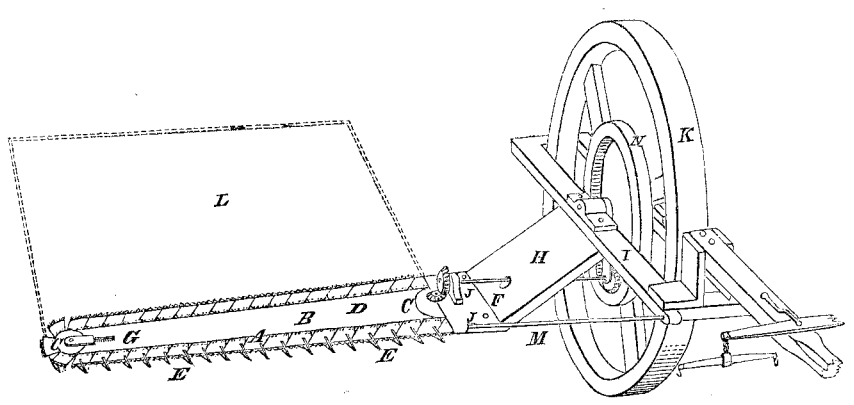
Andrew J. Cook, of Delphi, Ind., obtained a patent on the same day for a revolving rake, also to take the cut straw off the platform at certain intervals.

Clinton Foster, of La-porte, Ind., obtained a patent on Jan. 1st, 1847, for a combined cutting and thrashing machine.

D. A. Church, and L. H. Obert, of Friendship, N. Y., and W. W. and O. F. Willoughby, of Chicago, Ill., obtained a patent on Feb. 13th, same year. The claim in the Patent Office Report is for "constructing the separation, so that it shall consist of separate combs, turning on pivots in endless chains, operating as shown."

John Dunlap, of Walworth Co., Wis.; obtained a patent on June 26th, same year, for a swinging brush on the shaft of the reels, in combination with a stationary brush.

FIGURE 43.



On the10th of the month following (July, 1847,) William F. Ketchum, of Buffalo, N. Y., obtained the patent for the improvements represented in fig. 43, and which, since then, has been the subject of considerable litigation and fluttering among patentees and constructors of reaping machines.

This figure is an isometrical view. The following is the specification:

The nature of the invention consists, firstly, in the crooked-arm or coupling-piece, in connection and combination with the rack-piece, and the position of the same on the carriage frame, to wit: attaching it at or near the center or at any point within the diameter of the driving-wheel, whereby the grain can be raked off the platform on one side, out of the way of the track of the machine, and a greater degree of strength and stability to the rack-piece is attained, as well as producing a more perfect balance of the power applied to propel the machine, than if the attachment was made out of the circumference of the driving-wheel. Secondly: In an endless chain cutter, for cutting grain and grass, and the application of it in such a way as will cause it to run around pulleys, with the back of the cutter against them, (the pulleys are fixed on the rack-piece, of proper length for the width of the swath to be cut,) with the cutter passing around the pulleys, the cutter being covered, all but the edge, which comes in contact with the grain or grass.

The object and intention of varying the position of the rack-piece on the frame, is to produce a balance, by securing it at such a point on either side of the center of the driving wheel as shall best insure a perfect balance, and at the same time give greater security and firmness to the rack-piece. The distance at which the rack-piece must be secured to give the greater security, &c., cannot be specified, as every machine requires a different postion for it; but any point within the space of one foot from the center of the driving-wheel, will be found sufficient latitude to give the desired balance.

A is an endless belt of cutters, connected together by lapping the longest pieces on the top of the short pieces, seen at B. The inner corner of the longest pieces are rounded off, so that the belt may bend or work around the pulleys, seen at C C. The belt of the cutters is placed on the rack-piece, D, flat-wise, and around the pulleys, edgewise. The rack teeth are fastened to the rack under the belt of cutters, and are seen at E E. The inner corners of the longest pieces or segments of the belt of cutters being rounded, allows the belt to yield and work around the pulleys edgewise. The pulley nearest the driving-wheel is propelled by cogs, on the shaft, F, which shaft is propelled by the main cog-wheel, seen at N. The other pulley yields to the uneven surface of the belt by a spring, G, bearing against its boxing.

The crooked arm or coupling-piece, H, which connects the rack-piece, D, to the cast iron frame, I, I make of cast iron, and fasten one end of it to the frame, at or near the center, or at any point within the inner circumference of the driving-wheel, K. The other end has a sort of open mortise in it, in which I fasten the rack-piece, D, with bolts, seen at J J, which rack-piece may be made of wood or wrought-iron. By connecting the rack-piece to the crooked coupling-piece, H, and the crooked coupling piece to the frame, I. I am not confined to a small driving-wheel, but can use any diameter required. With this improvement of the crooked coupling or elbow-rack, my rack and cutters are always on a level with the ground, and as near the ground as it may be required for cutting grain and grass. Although the frame and the center of the driving-wheel, where the coupling is attached, may be two feet or more from the ground, I attach this coupling or elbow any where on the frame within the diameter of the driving-wheel, which enables me to rake the grain off the platform, L, on one side, out of the track of the machine. I brace the rack to the frame with a wrought-iron brace from the front or rear part of the frame, seen at M.

I claim, firstly, the crooked arm or coupling piece, in connection and combination with the rack-piece, and the attaching and securing the crooked arm, (supporting and sustaining the rack-piece to the frame,) at or about the center, so as to produce a balance, by securing it at such a point on either side of the center of the driving-wheel as shall secure the balance and give firmness to the rack-piece. Secondly, I claim the endless chain cutter, in combination with the pulleys and rack teeth for cutting grain and grass, as above set forth.

This patent has been surrendered and re-issued Oct. 21st, 1851, on Jan. 11th 1853, and again April 26th, 1853,—no less than three re-issues. As the validity of the latest re-issue must rest on what was embraced in the original machines and this figure, we will state that the gist of what is valuable in the patent is the crooked arm, H. The endless band of cutters are not used in practice, but the arm, H, has been found to be very valuable in reaping machines. The claims of the latest re-issue are as follows:

First, placing the cutter-bar and cutters lower than the frame of the machine, and opposite the side of the plane of the wheel, in such a manner as to leave unobstructed space below the frame, and also between the wheel and the cutters with their supports, to allow the machine to pass freely and without clogging over the cut grass or grain, as set forth.

Second, I also claim placing the cutters lower than the frame and axle, and in or nearly in the same vertical plane with the axle on which the frame hangs and vibrates, and parallel, or nearly so, to said axle, so that the vibrations of the frame, on uneven ground, shall not materially elevate or depress the cutters, as herein set forth.

Third, I also claim the endless chain of cutters, in combination with the guard teeth, operating substantially as described.

The American Ostrich.

The Minnesota *Pioneer* says, that two specimens of the American Ostrich, male and female, were recently killed near Fort des Moines, Iowa. They are described as four and a half feet long, and five feet in hight, with bills six inches long, straight and very sharp. They resemble, in most points, the ostrich of Africa.

LITERARY NOTICES.

THE WORLD A WORKSHOP—This is a neat little volume by Thomas Ewbank, formerly Commissioner of Patents, and published by D. Appleton & Co., this city. The object of this work is to show that our globe was specially prepared for man as his residence—his workshop—and he prepared as the worker for it. It presents a brief history of our globe, describes it geologically, and shows the power of man over matter, in molding it into new forms, and applying it to new use. It is a useful work, and contains a mass of statistics on almost every subject, so compressed as to make it of inestimable value as a pocket companion.

BIBLIOTHECA SACRA—This able Review, published by W. F. Draper, of Andover, Mass., and edited by the great Congregational lights of our country, commences a new volume with the present number—Jan., 1855—which is exceedingly rich in theological and scientific lore. It contains a fine article on the pre-existence of the human soul, another on Divine Providence and physical laws, a very able one by Rev. J. O. Means, on the narrative of the creation in Genesis, and a fine one on an excursion in the Holy Land, by Prof. Robinson. This religious Review is one of the most distinguished in the world.

GEOGRAPHICAL AND COMMERCIAL GAZETTE.—The first number of a monthly magazine of the above name, has just been issued by J. Disturnell, No. 207 Broadway. It is to be edited by an association of practical and scientific gentlemen. This number contains a beautiful map of the Arctic Regions, and a history of the efforts made to discover a north-west passage. This is a publication much needed, and will, we have no doubt prove eminently useful.

Seven Christmas Stories, by Charles Dickens, have just been published in a neat pamphlet, by J. A. Dix, No. 17 Spruce street, N. Y. The children will never forget the pleasant stories of Dickens.

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